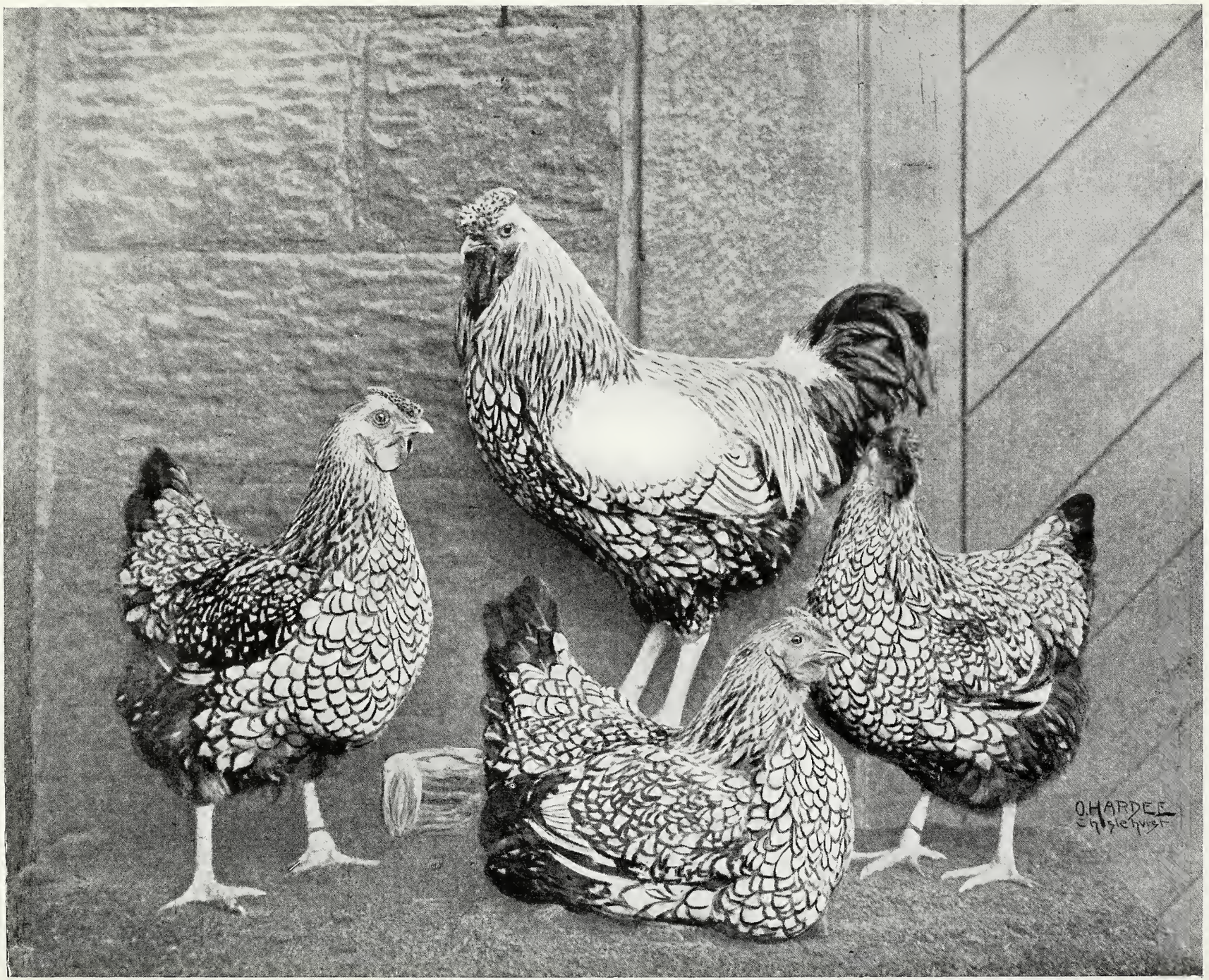
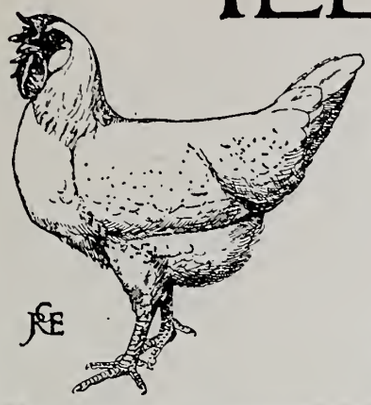


COCKEREL BREEDING-PEN OF SILVER WYANDOTTES. Bred by and the Property of O. F. Bates, Harrogate,

THE ILLUSTRATED POULTRY RECORD



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DIARY OF THE MONTH.

EDITORIAL NOTICES.

Telegrams: "CHICKENDOM." Telephone: 1999 P.O.CITY.
ENTERED AT STATIONERS' HALL.

The Editor will be glad to consider any MSS., photographs, or sketches submitted to him, but they should be accompanied by stamped addressed envelopes for return if unsuitable. In case of loss or injury he cannot hold himself responsible for MSS., photographs, or sketches, and publication in the ILLUSTRATED POULTRY RECORD *can alone be taken as evidence of acceptance. The name and address of the owner should be placed on the back of all pictures and MSS. All rights of reproduction and translation are reserved.*

The Editor will be glad to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered by experts in the several departments. The desire is to help those who are in difficulty regarding the management of their poultry, and accordingly no charge for answering such queries is made.

The Annual Subscription to the ILLUSTRATED POULTRY RECORD *at home and abroad is* 8*s., including postage, except to Canada, in which case it is* 7*s. Cheques and P.O.O.'s should be made payable to Brown, Dobson, and Co., Limited.*

The ILLUSTRATED POULTRY RECORD *is published on the first of every month. Should readers experience any difficulty in securing their copies promptly they are requested to communicate immediately with the Editor. The latest date for receiving advertisements is the* 20*th of the month preceding date of issue.*

The utmost care is exercised to exclude all advertisements of a doubtful character. If any reader has substantial grounds for complaint against an advertiser he is requested to communicate at once with the Editor.

The N.U.P.C. Four Months' Competition.

The 1909-10 laying competitions will be remembered on account of the severity of the test of management and the constitutional fitness of the competing fowls. Following the Utility Poultry Club's reports from Rye and Ilkley, in both of which special reference was made to the unfavourable climatic conditions, that of the Northern Utility Poultry Society's competition at Burnley states that the winter there was "the worst experienced for the last twenty years." Under such adverse conditions it is impossible to dissent from Mr. Pedley's opinion (expressed as the U.P.C. representative) that the egg-production reflects great credit on the manager. Although no new records were established there was a top pen total of 252, a pen average of 141, and a total production by 24 pens of 3,394 eggs during sixteen weeks of floods, snow, and frost. Mr. Longbottom, the Hon. Sec. N.U.P.S., draws particular attention, by means of a table of averages, to the relative merits of sitting and non-sitting varieties as winter layers. The figures given cover a period of five years, and do much to dispel the impression that non-sitters are necessarily poor producers of winter eggs; indeed, in one competition their pen averages equalled those of the sitters, and in another they exceeded them. In the recent competition the sitters averaged 143, the non-sitters 135 2-5th. Relative to the condition of the birds, to which the manager—Mr. C. G. Skipper—has drawn attention in his interim and final reports, the details show that a proportion of one in four was immature at the commencement of the competition, whilst the forward state of others is indicated by the egg-production of twenty-three of the pullets before the beginning of record-keeping. Sixteen birds moulted, and eighteen be-

came broody—three of them twice. The remark of the manager to the effect that "there is much to be learnt yet in selecting birds to take part in a laying test" is fair comment.

Special Provisions.

There are points in connection with the Burnley competition that call for remark. The first is that the scheme of operations has been avowedly dominated by the intentional adoption of conditions similar to those under which "the ordinary working-man" keeps fowls with an eye to profit. The competing pens were bulked in groups of three, each group of three quartettes being housed in "cotes," five feet by four by from five to six feet high, with a small "scratching-place," and a grass run measuring about ten yards by fifteen. This plan of penning and housing the birds in lots of twelve is especially commended by the reporting representative of the U.P.C., who suggests that it should be adopted as far as possible, and even extended to groups of 24 fowls. The argument is that this would demonstrate what could be done on commercial lines, and it is urged that the trap-nest system so admirably lends itself to this plan. There is, of course, the opposite contention that any increase in the number of birds in a pen must to some extent militate against the accuracy of individual records, owing to the eggs which some pullets will persist in laying between the hours of dusk and dawn; these can generally be fairly well accounted for in a pen of four, but not in a pen of twelve. The next point is that although, as stated, the feeding conformed to the method of "the ordinary working-man," it was scarcely ideal; and the last suggestion is that it might be more generally beneficial to set a higher standard of conditions, rather than approximate to those commonly in vogue—always, of course, within the limits of possibility for those it is chiefly sought to impress.

Gathering Up the Results.

The poultry boom to which reference was made in our last issue has continued, but on a somewhat lessened scale. That probably may show greater depth. It is evident, however, that a real impression has been made upon multitudes of people throughout the country hitherto untouched by the specialist Press. Amongst these there are many who are only looking for an easy way of making, or finding, a living. Such may be left out of consideration. Others there are, more practical, but yet absolutely without knowledge, who think that a solution of the poultry problem is to be found in the starting of huge farms or plants, where eggs can be produced by the million and chickens by the thousand. These need first of all a realisation of what is involved. The great gains are the evident signs that perhaps more than ever before the attention of farmers, of those who are already on the land or shortly will be, has been drawn, first to the need for increased production in order to fill the gap due to decreasing foreign supplies, and then to ensure marketing of produce in accordance with modern conditions. The need for combined or co-operative marketing in many districts was never so evident as now. We are glad, therefore, to see reports of so many meetings in different parts of the country for the formation of local co-operative societies, and hope that the National Poultry Organisation Society will rapidly augment the number of local collecting depots working with it. All who are concerned in the poultry industry should utilise to the full the interest thus awakened.

A Missed Opportunity.

It would almost appear that breeders of stock poultry are lacking in enterprise. Some time ago it was announced that a Royal Commission, under the presidency of H.R.H. the Prince of Wales, had been appointed to secure the adequate representation of British producers and manufacturers at foreign exhibitions. In connection with the Brussels and Buenos Ayres International Exhibitions, to be held this year, it was not found possible to arrange satisfactorily for displays of our stock, and, in place of this, space was secured at both for exhibiting enlarged photographs of the respective breeds, in addition to which handbooks in different languages for distribution have been prepared by our Board of Agriculture, and during the whole time, extending over six months at Brussels, a qualified linguist will be in attendance to give visitors information as to the stock, and where these can be obtained. In connection with horses, cattle, sheep, and pigs, the breed societies have readily responded to the invitation of the Agricultural Committee, but not one of the poultry breed clubs has accepted the proposal, and the proposed Poultry Section has had to be abandoned. That cannot fail to injure seriously the interests of breeders. It is not a question of cost. Each club was invited to supply a typical photograph of its breed, to pay £2 10s., and the Commission undertook the two enlargements, with frames, rent of space, services of attendant, and all expenses, asking that names of breeders should be supplied for use by the attendants.

Market Restrictions.

Many and loud are the complaints made by poultry-producers, among others, as to the results of the present system of selling in the various wholesale markets of London and the larger provincial towns. Two or three years ago the

Sussex fatteners formed an association for mutual protection and defence, which has undoubtedly done a large amount of good, but whether it will accomplish the full result desired remains to be seen. Upon that point we are inclined to scepticism. It is simply an improvement of the present system, not the drastic change in accordance with modern conditions which appears to be required. Some of the complaints made are unreasonable, the trouble arising from bad methods adopted by senders, but after elimination of these there seem to be sufficient legitimate cases warranting investigation. Eggs do not give much trouble, as these go direct to the retailers. Poultry, on the other hand, are sent to salesmen, who occupy the position of agents to the vendor. It is stated that in many cases they are dealers rather than agents. Whilst we believe that market monopolies should be abolished, something ought to be done meanwhile either to disprove the strong impression that senders do not receive the sale price of their birds, less commission and charges, or measures should be adopted in the interests of producers.

A Point in Preservation of Eggs.

A year ago the question of preserving eggs was dealt with at length in our columns, and new readers are referred to the issue of April, 1909, for full information as to the methods of treatment. As dropping water is said to wear away the stone, so reiteration is necessary to press a truth home. As the season of preservation is now upon us, we wish to point out that the condition of the egg when put into the fluid determines, other things being equal, the quality when taken out six months later. This fact needs to be emphasised. Recently we heard of box eggs being purchased for preservation. Probably they were a fortnight old to begin with. What wonder that the venture was unsuccessful! What we should aim for is preservation as near to the place of production as possible, and only absolutely new-laid eggs to be put down. In the future we hope to see preservation plants in every producing district, connected with every collecting depot.

The Marriage of Mr. A. L. Cook.

On the 9th of last month Mr. A. Lockley Cook, the second son of the late Mr. William Cook, and a partner in the well-known firm of Messrs. W. Cook and Sons, Orpington House, St. Mary Cray, was married at St. Paul's Church, Herne Hill, to Miss Alexandra Maud Heath, daughter of Mr. and Mrs. J. T. Heath, of Denmark Hill. A large and fashionable gathering assembled at the church, and afterwards at the reception given by the bride's mother. Among the friends present were many who are well known in the poultry world, in which Mr. Cook is held in high esteem. The wedding presents were numerous and costly. After the reception the bride and bridegroom left by motor-car for Folkestone, *en route* to the South of France, where the honeymoon is to be spent. To Mr. and Mrs. A. L. Cook we extend our hearty congratulations and our good wishes for a long, happy, and useful life.

Popularity by Merit.

Whatever may be said about the efficacy of making breeds popular by booming them on every conceivable opportunity, it has been amply demonstrated that this plan is of very little use unless the breed in question possesses some very distinct merit. Many booms have been attempted; some have succeeded, and others have failed. We hear very little of the latter, because the breeds possess little or no natural merit; but in the former case we frequently hear their phenomenal popularity attributed to the skill of the "boomster," whereas that individual would have been practically powerless but for the natural merits of the breed. Perhaps the most remarkable boom we have seen in recent years was that of the Black Wyandotte. Well, that boom has passed, and still we find the breed popular, and largely kept by fanciers and utilitarians alike. Its merits would have been sufficient to entitle it to a very prominent place among the popular breeds even had it never been boomed. The White Wyandotte is an example of a breed that has attained to the highest degree of popularity without the aid of the "boomster," and such an example lends strength to the assumption that a steady, sure advance is better than a rapid one. On the other hand, we could name several breeds, especially novelties, to which the "boomsters" have devoted their attention without avail. In this respect the public are to be congratulated upon exercising their judgment rather than relying upon the mere statements of interested persons.

"The Smallholder."

"The Smallholder," the first number of which is dated March 12, is a new journal intended to cater for that growing class in the United Kingdom who farm their own allotments. There are nearly a million of these in Great Britain and Ireland, and if the difficulty of reaching a public so scattered as this one can be overcome, the venture should meet with considerable success. So far as the journal itself is concerned, an excellent beginning has been made. Practically every department of the produce of a small holding, including poultry, is touched upon in this number; besides which there are articles on such subjects as the care of dogs, the art of manuring, farm buildings, dress, and cookery. The journal is illustrated with half-tone blocks.

THE ECONOMIC ADVANTAGE OF A KNOWLEDGE OF THE HABITS AND CHARACTERISTICS OF POULTRY.

By Miss Galbraith.

THERE is no use blinking the fact that most men farm poultry for purely commercial reasons. The few who do so for love of the life, or of the birds, or in order to study the natural history of a group, or make scientific experiments, will not need to be reminded of the advantages to be gained by a close study and understanding of the characteristics of the birds; but of the thousands who take up poultry-keeping as a profession not many realise until long, and sometimes bitter, experience has taught them that every smallest detail known regarding the habits, tastes, and characteristics of poultry has sooner or later an actual money value.

The man who first had the wit to apply to daily practice the perfectly familiar item of knowledge that the domestic hen is by nature a scratcher did more to revolutionise the poultry industry than perhaps all other causes put together. Everybody knew it; the very scientific definition told us she was a "scratcher"; yet for centuries the unhappy fowl was left to mope through the dreary clamminess of an English winter, depressed and unproductive. A little draught-proof shelter, a little dry litter, and a few grains of corn made such a difference to her daily comfort and happiness that the door was opened to all those further developments in housing, selection, breeding, &c., which have led to the production of thousands of winter eggs on every poultry-farm yearly.

In attempting to show how her natural habits may be made use of, I fear it is necessary to be egotistical, and quote from my own experience, partly because I have no other at first hand, and also because in all that I have learned among poultry, the hen has led and I have followed with great advantage to both. Such knowledge is perhaps more useful to those who keep small numbers than to large farmers. When hens are run by thousands, instead of hundreds, they are regarded as mere egg-machines, or money-producers, and seldom as individuals, and possibly it is in this need for ignoring individual requirements that we find the rapid decrease in the proportional profits as numbers increase. Where many varieties and breeding-pens are wanted the birds must be kept penned, and though many believe that they lay better in confinement, yet one of the strongest advocates of that system wrote recently: "Though hens do well enough at liberty on clay, I would never again put up pens on such soil." What does this mean but simply that it is more profitable to give the hen what she needs rather than what our convenience demands? On heavy clay, on low-lying marsh, on bleak, wind-swept moorland bog, the old authorities say we cannot keep hens profitably. Certainly we cannot on the old lines, but give them a chance to use their own sense at liberty, and provide the shelter they love, scratching material, arable as well as grass land, satisfy their craving for green food summer and winter, and they will not only thrive but pay, and pay well.

It is generally thought that if hens sleep in the trees they will not lay in winter, but in the southern counties at least this is not so, if the day conditions are right. Since it occurred to me that it was their habit of huddling under the trees on wet and cold mornings, rather than the night exposure, that checked laying, the provision of shelter and employment for the early morning hours have worked wonders. By keeping odd corners, cold brooders, and any disused coops well littered, and supplied with grain, winter eggs have been plentiful from forty or sixty birds of mixed ages sleeping in exposed trees, whose official houses are only calculated to hold twelve altogether. The profits are not so large as where scratching-sheds are in use, but they are sufficient to have justified the continuance of a system which was first occasioned by the disaster of a fire that burned down houses and stock, and the economic advantage of understanding the needs of the birds was such that it was possible to build up the stock a second time without awaiting the forthcoming of fresh capital for accommodation.

The preference that birds have for arable land is a taste that may be exploited to the full, and one of my friends has taken advantage of it to run large numbers of birds among bush fruit, being sufficiently acquainted with their tastes to know that they will not injure the trees or unripe black currants in the smallest degree. Only those who have given this system a fair trial can have any idea of the profits to be made from a utility poultry farm. Not only is the poultry kept rent free and the ground benefited, but the

difference between stock grown and kept at liberty on well-cultivated arable land, as compared with that kept on bare grass runs, is enormous in point of vitality, stamina, and prolificacy, and it appears to tell more with each generation. How much it can effect in the matter of egg-yield may be guessed from the history of a small paddock on this farm.

On the whole place there is but this one really dry corner ; it is sandy and open to the full south sun, the one spot of which poultry experts exclaim with hope and pleasure that "the birds should do well here." So I thought, yet for three years I struggled, and in vain, to make the birds in that paddock pay their way. There was a good clump of furze and broom for shade, a holly hedge for shelter ; yet, arid and baking in summer and wind-swept in winter, that corner killed off chickens, stopped the best layers, and kept all the hens unproductive, for not only does the wind strike down from above, but it blows in two directions at once on that delectable spot. There is but one corner where a house can stand without being periodically blown over, and the unbreakable habit which hens have of loitering near their house kept them constantly sitting in cutting draughts, instead of taking advantage of the sheltering gorse. All expedients failed to keep them in shelter or shade, grain was scattered in the broom, roots placed in sunny corners, yet they always returned shortly to their house. Gaps in the hedge were built up, and part of the ground dug and cropped with potatoes, &c., and some improvements followed, but the summer egg-yield still remained miserable. At last I gave in, and by the simple plan of planting a rod of Jerus lem artichokes right in front of their house, and permitting them to indulge their love of home and a certain corner, and by making that corner comfortable and shady, the egg-yield was doubled and even trebled from July till November, no matter what the age of the hens occupying the run. It is still the least profitable part of the farm, but it is fair, and, thanks to the growing crops, the heavily-stocked portion remains as fresh as ever after many years' occupation, and with a minimum of labour.

Coming to the consideration of tastes, one cannot help being amused when reading the lists of vegetables recommended for fowls. They appear to be selected, not from the slightest knowledge of what healthy fowls naturally eat, but from some old herbal or medical work dealing with what diseased human beings ought to eat. It is true that birds kept in confinement, or kept short of green food, will eat chopped dandelion eagerly, but then I have seen such fowls fall eagerly upon potato leaves, oak and young holly leaves, and even upon the artificial leaves in a lady's hat, but this scarcely seemed to me to be sufficient proof that such was the correct food for them. A diseased fowl may benefit by bitter and pungent herbs, but why should healthy birds, who cordially dislike anything bitter, be asked to eat such ? When it is "Hobson's" choice they will eat them, but give them a free run in a well-cropped garden for a year, and not one dandelion leaf, lettuce (until blanched), leek, or onion will be touched. The truth is that hens have an insatiable appetite for sweet and tender vegetables. If those who think it worth while to study the tastes of their birds in this matter will give unlimited quantities of swede and rape leaves, beloved of hens, followed in autumn by white turnips, swede roots, Jerusalem artichokes, mangolds, and will cook all rough, tough, and unpalatable foods, such as turnip tops, old lettuces, coarse cabbages, nettles, and clover chaff, they will find that the birds will eat so much of these that no money need be expended on medicines, and the corn bill can be reduced, for light breeds at least, to one penny per week. By doing this, and excluding the exorbitant item of wheat, I have, even in this winter, fed all birds, laying or otherwise, at a fraction over that rate, supplying meat and buying in small quantities at high prices. Surely it is worth studying their tastes to arrive at the triple results of perfect health, reduced cost of keep, and increased egg-yield, to say nothing of the great pleasure to the birds.

I have not space left to touch upon the questions of moulting and broodiness, or to do more than mention all those numerous habits of roaming, foraging, perching, dusting, &c. ; the characteristics of shyness, of greed, or of poor feeding from fear, of semi-starvation from gallantry ; the jealousy that will lead to fighting to the death, both amongst cocks and hens, for there are landed proprietors in the feathered tribes who will defend their homes against all-comers ; and, lastly, the mother "instinct," as it is so erroneously called. It is perhaps in the hatching and rearing of chicks that we find a knowledge of the characters and individuals of most use. It is not generally known that close inbreeding brings out the brooding habit in certain individuals of perhaps all the non-sitting breeds, and it may surprise many to know that over two hundred chicks were hatched and reared here last year by light, "non-sitting," pure-bred mothers. And those who want to know what can be accomplished by hens in the matter of rearing chicks at liberty must first know the light breeds, the most perfect and trustworthy of all mothers, who rarely trample on and never overtire their broods.

THE WYANDOTTE.

By W. W. Broomhead, Edward Brown, F.L.S., Mrs. Herbert Bury, W. M. Elkington, W. H. G. Ewart, T. R. Grant, and J. Stephen Hicks.

THE BLACK.

IT is an axiom of the poultry Fancy that every new variety must stand or fall by its utility qualities. However attractive in a show-pen the birds may be, and however skilfully the boom in the variety may be engineered, if the new-comer cannot prove and sustain its claim to utility qualities superior to those of well-established varieties, its popularity will wane and its supporters will fall away, until only a few loyal enthusiasts remain to struggle on and show their birds in the A.O.V. classes.

The Black is an excellent all-round variety for utility. For exhibition its colour is one of its chief recommendations. I know of no prettier sight in a poultry-yard than a pen of these birds, with their brilliant beetle-green plumage, bright yellow legs, and scarlet combs. Those breeders who are compelled to live near the smoke and dirt of a town know that a White or a Buff bird loses half its beauty under these conditions, and the demand for Black Wyandottes from the manufacturing districts shows that there are large numbers of fanciers who want to keep Wyandottes, and are delighted to find a Black variety of this most deservedly popular breed.

It is not to be wondered at that the popularity of the Black Wyandotte has been one of the wonders of recent years in poultry circles. Its claims to recognition rest upon too sure and solid a foundation to be lightly dismissed, and in the enthusiasm and loyalty of its supporters I see the brightest augury for its future. H. B.

THE BLUE.

TO those fanciers who are sufficiently unbiassed to consider the different breeds of fowls in an impartial manner, it appears strange that a new variety of a colour known to be an almost impossible one to breed true should enjoy a boom. Yet there was something of a craze for blue-plumaged fowls last season, and the Wyandotte did not escape it. Of course, those who are engineering the boom are "in" Blue Wyandottes for what they can get out of them; and, like most people who have an axe to grind, they will probably say that there never was such a variety to suit the beginner and the novice. Well, there never was such a difficult one, which may be said, in fact, of all blue fowls.

The blue of the Blue Wyandotte differs from that of the old-established Andalusian. It is what some of its admirers are pleased to term a "pigeon" blue, a somewhat light shade and of one tone, as compared with the dark blue and black markings of the Andalusian. It must be admitted that it is the more difficult of the two blues to breed to anything resembling standard requirements, although there cannot be the slightest doubt that a fowl so adorned is indeed a charming specimen. To breed anything like a representative percentage of even passable show birds from a union of blue on both sides is the problem to solve. Double-mating will be as child's play to it. Those who have taken up Blue Wyandottes with the hope of doing great things may be pinning their faith to Mendel's Laws! W. W. B.

THE BLUE-LACED.

THIS pretty variety seems to have suffered neglect during the past two or three years, probably owing to the boom in Blacks and Blues. Still, the other laced varieties, Silver and Gold, have suffered just as badly, or even worse, as it is seldom that a class of Blue-laced numbers less than seven, and lately I notice Golds and Silvers averaging about five. I cannot understand why Blue-laced are not taken up more, for both as regards exhibition and utility purposes they want a lot of beating. Their beauty is unique; there is no other variety marked or coloured like them—blue, chocolate, and gold, a grand scheme of colour blending, and one an artist would dream over. Their utility qualities are on a par with their beauty, pullets' eggs averaging 2¼oz. and hens' 2½oz., which is good considering their size, and they are only small eaters. As table-birds they are plump and juicy, and their flesh is of good flavour, so they have everything to recommend them to the utilitarian as well as to the fancier. As fowls for the novice to start with, they offer exceptional opportunities, as they do not command fancy prices, and a pen of choice specimens need not cost more than two or three guineas, and they

would breed winners ; while the very best could be had for five to seven guineas a trio. I have been breeding them about eight or nine years, and produced a first Palace winner from the first season's breeding, and since then I have bred six or seven others that have won there. T. R. G.

THE BUFF.

WITH the craze there has been of recent years for buff-coloured fowls, it is a matter of surprise that the Buff Wyandotte has been allowed to become almost extinct. Yet such is the case—in England at least—and it is very seldom indeed that one sees the variety at exhibitions these times. However, with the increased interest now being taken in rose-combed fowls—more, perhaps, in the so-called "rose-combing" of single-combed varieties than in the old-established rose-combed breeds—the Buff may come into its own once more.

There is no question about its beauty from a fancier's point ; its lustrous buff plumage of a somewhat dark shade, its rosy red headgear, and its bright yellow legs are most attractive. And beyond these, it is a bird of graceful curves from the tip of its beak to the finish of its tail. What more does the seeker for the beautiful require ? And yet the Buff Wyandotte, even in its palmiest days, never had a great vogue. No doubt the yellowness of its skin and the average small size of its eggs put it out of court when it had to compete with other breeds for utility purposes. However, if one can overcome the prejudice against yellow skin on a table-fowl, it is a grand variety to take up, particularly from a fancy point of view. W. W. B.

THE BUFF-LACED.

CORRECTLY speaking, this variety should be known as the White-laced Buff, it being, in fact, a buff fowl with white lacing. At the time of its introduction, a dozen or more years since, there was some controversy concerning its name ; but the present one, being the shorter and the better to grasp, was chosen. What's in a name ? The Buff-laced Wyandotte by any other name would be as difficult to breed to perfection ; and therein lies its drawback—it is not an easy one to breed for show purposes. At one time there was a club to look after its interests ; that club may still be in existence ; but "has anybody here seen" anything of it of late ? The Buff-laced never was a very popular variety of the Wyandotte, and those fanciers who did take it in hand were not over-enthusiastic. But, no doubt, the difficulty to get the two colours, buff and white, to perfection and a good stamp of lacing were against it. Buff fowls often produce those with very pale and almost white markings, somewhat resembling lacings, but to make that fault a good point is another thing and one that has failed—in the Buff-laced Wyandotte, at least. W. W. B.

THE COLUMBIAN.

THERE is something decidedly fascinating in white fowls with black striped hackles and black tails. It is for that reason, it may be, that he Columbian has gone ahead. Then, again,

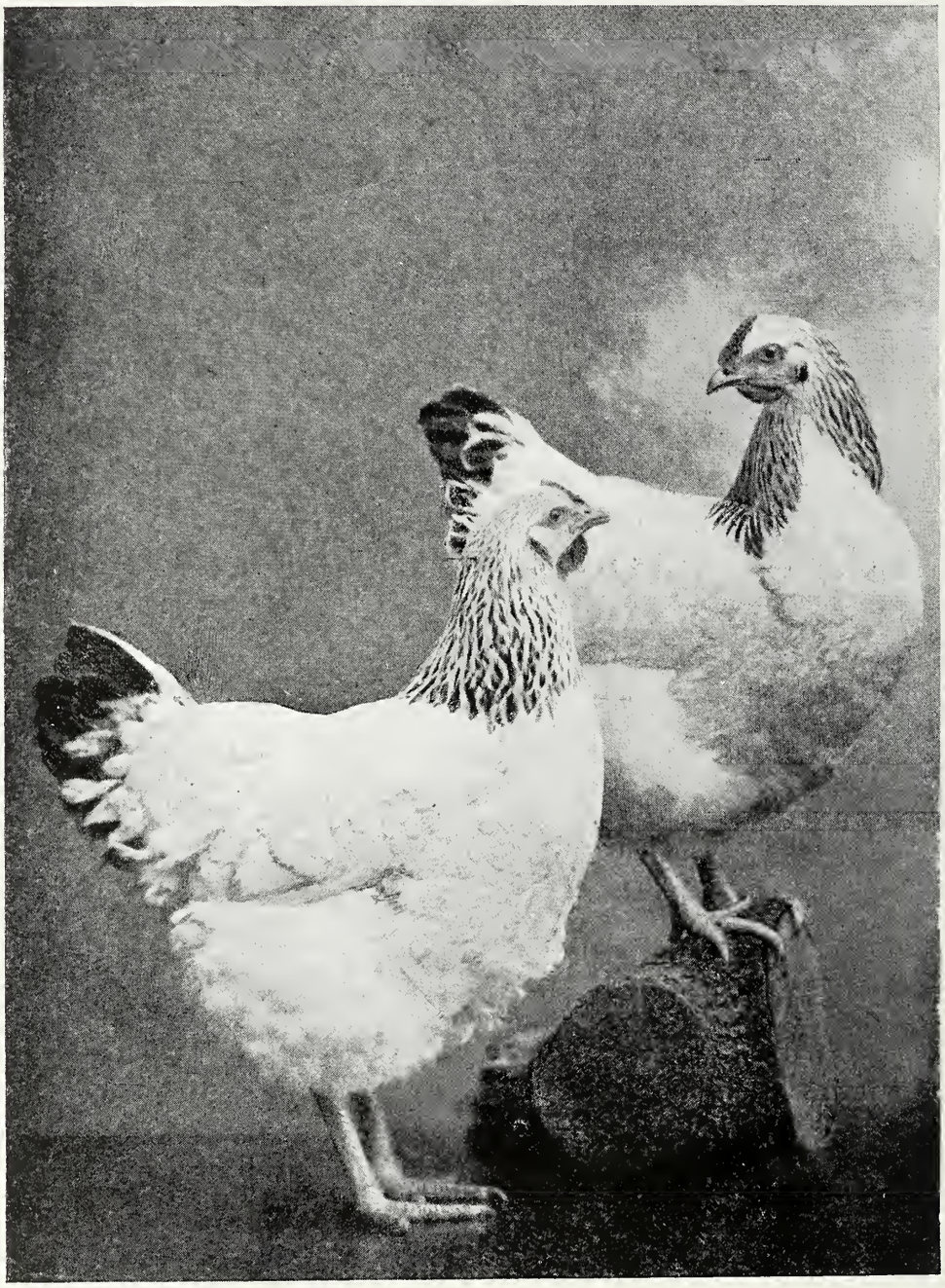
COLUMBIAN WYANDOTTE COCK. [*Copyright.*

in such a bird there is not much of a tendency to rich yellow skin; hence when its utility properties are to be considered it will be found to figure well. Although the variety has made much progress during the past few years, it has

not yet reached perfection. Type has not been so firmly established as it might have been ; and there is still a tendency to brassiness in the male birds. Another failing, too, is an inclination to feathers on the shanks, a throw-back to the Light Brahma. As a variety, however, the Columbian is a popular one ; and the club which is looking after its interests is doing so in an excellent manner and catering for the novice.

In most breeds of exhibition fowls double mating is necessary to secure the best specimens — those approaching nearest to the standards of perfection set up for them. Some authorities say that Columbian Wyandottes of both sexes can be bred fit for show from one pen, but that is very questionable. To secure specimens with good black-and-white neck hackles and tail lacings, black primaries edged with white, and pure white top colour, it is necessary to have dark, almost black, under-colour ; and it does not answer to breed from such birds on both sides. If the females are about perfect and with rich black markings, they will produce good exhibition pullets if mated with a light male bird, one with almost white under-colour and possessing dark grey rather than jet-black markings. On the other hand, this order must be reversed if good show cockerels are wanted. The Columbian is an excellent variety to take in hand for the fancier, since not only does it require careful mating and line breeding to produce good specimens, but one must understand the "art" of preparing the fowl for show, to exhibit it in fit condition. A white fowl can be greatly improved by careful washing and dressing (not faking or trimming), and so can a Columbian Wyandotte. Many really good birds of this variety are at a disadvantage through being carelessly penned for competition.

W. W. B.



COLUMBIAN PULLETS. [*Copyright.*

THE CUCKOO.

THE Cuckoo must be mentioned as a variety of the Wyandotte breed, because there once was a Cuckoo. It was many years ago—so many, in fact, that most people look on it now as quite a defunct branch. It would probably have remained in obscurity had it not been that an attempt has been made to establish a rose-combed variety of the Barred Plymouth Rock. As it is, there are very few Cuckoo Wyandottes about at the present day, and not so many as there are of the Rose-combed Plymouth Rock just mentioned. It was said that the Cuckoo died out because of its

too close resemblance to the Pea-combed Barred Plymouth Rock. There appears to be a lot of truth in that statement. But the Wyandotte men do not intend to give up the variety, since they evidently mean to keep their breed right on top for number of varieties, and at present the number is fifteen. W. W. B.

THE GOLD-LACED.

IN the old days the Gold-laced was known as the Gold. It was when the Wyandotte was a laced breed, and when it was fully intended to keep all varieties laced. It is, without doubt, a charming fowl ; but the greatest difficulty from a show point of view is to get a level tone of ground colour, a bright golden bay, free from shafting. In too many specimens the ground colour is dark enough to be of a distinct maroon

GOLD-LACED WYANDOTTES. [*Copyright.*

shade ; in others it is light enough to be described as chestnut. There is "the happy medium"—it is difficult to attain and also to maintain. The dark-coloured birds generally make the best breeders, and washy-coloured specimens should be avoided. W. W. B.

THE PARTRIDGE.

PARTRIDGE WYANDOTTES were first produced in the United States, the Partridge Cochin being largely used in their creation, and the first specimens were imported into this country by Mr. John Wharton in 1906. About the same time, or soon after, Mr. Joseph Pettipher commenced to produce a strain derived from English birds, and it was with specimens from this strain that I won my first prizes with Partridge Wyandottes. The difference between the two lay in the fact that the Americans preferred a much darker colour, the males being almost maroon on the top, with red hackles ; while the hens had a mahogany ground colour. This, of course, was not acceptable in England, where Partridge Cochins have been bred to real partridge colour in the hens ; and though the American birds showed finer and sharper pencilling, the English specimens for a time held their own by their superior colour. Thanks, however, to the skill of a few English breeders, the objectionable American colour has been practically stamped out, and we now have one of the most handsome varieties in existence—the cock, with his bright red top, glossy green breast and tail, and beautiful hackles, shading from rich red to pale orange, each set off with a clear, sound stripe of glossy black, making a striking picture ; while the soft brown of the hen, with her rich lemon hackle and beautifully even pencilling of rich black, is even more pleasing under close examination. It is little wonder that this variety achieved sensational popularity a few years ago, when exhibition specimens realised such sums as £65, £80, £100, and £165, or that it still ranks as one of the favourites among modern breeds.

The most valuable asset of the Partridge Wyandotte, from the exhibitor's point of view, is its longevity for show purposes. Unlike some varieties, in which exhibition specimens are practically useless after their first season, Partridges can win prizes as long as they live, and the females do not, as a general rule, attain their full beauty until the second season. Consequently fanciers may purchase a pullet for 20s. that will moult into a hen worth as many pounds, and it is very seldom that they deteriorate. Moreover, in spite of numerous assertions to the contrary, Partridge Wyandottes are not so difficult to breed to perfection as some of the other varieties. Double mating is, of course, an absolute necessity, as it is in the majority of exhibition breeds nowadays ; but beyond that it is entirely a question of strain, and the breeder who commences with well-mated stock of a reliable strain, and studiously adopts the principle of line breeding, is sure to achieve a large measure of success if he exercises patience and refrains from selling every good bird he breeds, as many have been tempted to do in the days of high prices. W. M. E.

THE RED.

THE Red is one of the very latest of the additions to the Wyandotte family. It may be said to resemble a very rich or dark buff in colour. Just how far it is removed from the Rose-combed Rhode Island Red, or *vice versa*, does not matter. It is very near the true Wyandotte type, and that is saying much. It should "go," but to make it do so it wants booming.

W. W. B.

THE SILVER-LACED.

THE Silver is the original Wyandotte, and even now there is none other so difficult to breed to perfection. It is by no means easy to produce cockerels with pure silver white hackles and top and rich black lacing on the breast and bars, and pullets with sheeny black lacings on a pure white ground. The black lacing is so apt to come with a white edging to it, and the birds are often mossy or ticked in their ground colour. The lacings must be fine, open, and black ; but when they are fine, the black loses the desirable sheen and is more often of a very dark grey. Double mating is essential with Silvers, but although certain laws may be laid down as to which specimens to put together, much has to be left to chance. W. W. B.

THE SILVER-PENCILLED.

IN the Brahma this variety would be termed the Dark—it originated in the Dark Brahma. It is the counterpart of the Partridge, substituting silver-grey for the brown of the latter variety. Here, again, double mating is essential to procure representative show specimens, and there is a large element of chance in breeding them. The colour, particularly that of the females, is a most difficult point to get true ; and since hens moult darker each succeeding year, and seldom excel in pencilling, the Silver-pencilled Wyandotte is not likely to shine as a popular exhibition variety. Most people cannot be bothered to trouble over such intricate points nowadays when breeding for show purposes. W. W. B.

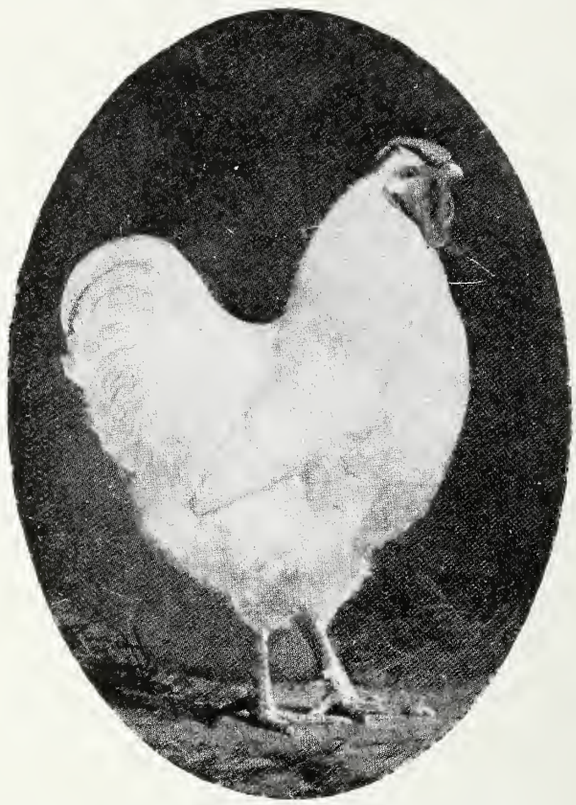
THE SPANGLED.

LIKE the Red, this is quite one of the latest ; but it has been rushed on to the market at too early a date. It too closely resembles the Rose-combed Ancona to merit a place as a Wyandotte just yet. It is mentioned because it was specially catered for at last year's International Show. W. W. B.

THE WHITE.

IN these strenuous days a variety of poultry to have a large following in the show arena, and an existence at once prolonged and successful, must be possessed of at least two good qualities. Such a variety must be fair to look upon, and at the same time be reasonably easy to breed somewhere near the standard. Laced and pencilled poultry afford scope doubtless to the old hand and to the wealthy breeder, but the inevitable double matings necessary for their production in perfection render such unsuitable for the novice. And to make use of a somewhat hackneyed phrase, the novice is the backbone of the Fancy.

Naturally the whiteness of a white fowl must be white. This may sound needless repetition, but none know, save those who have bred them, how rarely birds are produced whose colour remains absolutely untarnished at the end of a season. When one is convinced that a dead-white bird is in one's possession, he or she should be carefully



AMERICAN WHITE WYANDOTTE COCKEREL.

preserved, for the value of such for breeding purposes is incalculable. There are many degrees of colour in White Wyandottes—unmistakably yellow birds, patchy birds, sappy birds, creamy birds, and so on, up to the real white. Artificial shading will for a time ensure purity, but such methods are to be deprecated, save in the case of the large exhibitor, and, anyhow, there can be no mistaking the chalky whiteness of the genuinely pure bird.

Wyandotte shape in both sexes is best described as a succession of curves ; neither in pullet nor cockerel do we want to see any harsh or straight lines. Stoutness, breadth, and fairly abundant feather are required in cockerels, while in pullets good fronts, discernible cushions, and short, wedge-shaped tails are desirable, but frequently absent, features. Length of limb is highly to be deprecated in either sex, as is excessive tightness of feather ; not that the latter should be of too Cochin a texture, nor that it is wise to sacrifice size altogether in aiming at reduction of limb ; still, few will deny that Wyandotte type is faithfully indicated by the coined adjectives "cloddy" and "blocky."

Little remains to be said concerning size save to add the following note for the novice. Get your Whites as large as you can, without losing breadth and symmetry. The White Wyandotte Club's standard gives the following weights more as a guide than anything to be adhered to as binding :

	lb.		lb.
Matured cockerel about	8	Adult cock about	10
„ pullet „	6½	„ hen „	8

Comparatively unimportant as are heads and legs, it need not to be imagined that they are unworthy of attention. Rare indeed is a neat, well-worked comb, with its downward-curving leader ; and not infrequently classic winners are found with red-tinged or possibly pale-coloured shanks. Dealing first with head points, it may perhaps be advisable to enumerate the most frequently seen forms of bad combs, which are : the leaderless comb, the leafy and hollow comb, the Redcap or prodigiously spiked comb, and the lop-sided comb. All these types when met with

THE BEST WHITE WYANDOTTE AT THE GUELPH SHOW, CANADA, 1909. [*Copyright.*

should be avoided. Rather is the plain but neat comb with good leader preferable ; still, even and symmetrical work should always be aimed at. Eyes are desirable of as bright a bay colour as can be imagined. All shades of colour are to be met with occasionally, but especially objectionable is the grey or pearl eye, happily not often seen in the show-pen to-day in the case of White Wyandottes. White in lobes is also a fault that still crops up now and again, though not so much as heretofore, and when seen in an exhibit more often indicates lack of condition than permanent evil. Leg colour is more a matter of soil and conditions of life than anything else. Suffice it to say that to ensure the clear yellow tinge desired moisture is necessary, either in the shape of dewy herbage or else artificially supplied in the runs.

The laws usually laid down for breeding all stock will, of course, have to be observed in the case of White Wyandottes. Birds must be vigorous, free from deformities, and all that sort of thing. But chiefly must we look to the male for colour and head points and to the females for shape, size, and leg points.

J. S. H. and W. H. G. E.

THE WHITE-LACED BLACK.

IN a letter to a contemporary (*Poultry*, April 30, 1909) the Rev. C. H. Hildebrand said he was convinced that at no very distant date the White-laced Black Wyandotte was likely to come into prominent notice, and possibly secure an even greater popularity than is now given to its near relative, the Black. Mr. Hildebrand had been engaged in the production of the variety for six years, and as a result he claimed to have produced "a White-laced Black, which in type, leg colour, and lacing is essentially Wyandotte . . . a most strikingly beautiful bird, which, I believe, has a great future before it." W. W. B.

THE UTILITY VALUE OF WYANDOTTES.

POULTRY-KEEPERS are not always logical, but Nature is ever so. Effect follows cause as certainly as dawn succeeds the darkness of night. Frequently we see the effect, knowing nothing of the cause. Why some breeds of fowls attain a large measure of popularity whilst others remain in the cold shadow of neglect has puzzled many. Fashion is something, though that is a more or less temporary influence, except in a few purely fancy breeds. A merely fancy fowl may retain the favour of a limited *clientèle*, who, if wealthy enough to give rein to their desires, can secure for the best specimens high prices and make a good display at the leading exhibitions. Such is essentially the case with Bantams. Apart from races of that class, something more is required for attain-

ment of a widespread popularity. That something is the economic value for food purposes. Twenty-five years ago I wrote in the *Live Stock Journal* to the effect that no breed in which the practical qualities are sacrificed for exhibition points had ever maintained, or would ever maintain, its hold upon poultry-keepers generally. That statement has been abundantly verified. Even our poultry shows can be quoted in proof, for we find there that, as a rule, the breeds which are yet valuable either as egg or flesh producers are most in evidence. The lessons to be drawn from this fact cannot now be discussed. Enough if it be said that the explanation why the Wyandotte has been so popular over a long series of years is due to its usefulness as a worker, not for its beauty of plumage. If the former were sacrificed, then it would follow in the steps of decadent races, and all the bolstering of clubs and societies would not save it. Practical experience of its productiveness and successes attained in the various laying competitions have done more to spread its influence than all the shows ever held. They have had a share, but could not have bolstered up an unprofitable breed.

From the first, when there were only Silvers and Golds, the Wyandotte has proved to be an excellent layer, equally in this country as in America. That quality has been the sheet-anchor of its popularity. Plenty of eggs in winter has been, and still is, the object of most utility farmers. Or, as expressed to me the other day by an experienced poultryman: "I like to get the same amount of money for half the number of eggs." A hen which will produce at the time when eggs can be sold readily at 1½d. to 2½d. each can give points to those whose greater numerical records are made in the ¾d. to 1d. period. Certainly no breed has done this more successfully than the Wyandotte, and all the older varieties have scored in that respect. As to the newer types, I am unable to speak from personal experience, but have heard that these share in the same fecundity. The remarkable series of successes in laying competitions but repeats the story. Under such circumstances we cannot wonder at the wide distribution of the breed. During the last few weeks the writer has covered wide areas of Southern Britain, from Devon to Yorkshire, from Wales to Norfolk, and Wyandottes, especially Whites, appear to be kept increasingly in all parts of the country. That would not be the case unless the breed possessed qualities commending it to farmer and poultry-keeper alike, together with the vigour of constitution enabling the hens to stand the strain of heavy egg-production.

Egg-production is the chief quality which has commended the Wyandotte to practical or utility poultry-keepers in this and other countries. The older varieties—namely, Silvers, Golds, and Whites—displayed, however, one serious hindrance to full attainment of popularity—the size of the eggs produced, probably due to the Hamburgh blood used in its formation, though other influences were in the same direction. At first the eggs were much below market standards, and that is still the case with some of the varieties, notably Silvers and Golds. Improvement in this respect has undoubtedly been secured, but more requires to be done. Breeders should, therefore, watch this point most carefully, and by selection alone of full-weight eggs for hatching purposes bring about that further advance which is desirable. It is not too much to say that had the Wyandotte produced larger eggs, the breed would have met with greater favour. Probably we can find in this fact the explanation why White Wyandottes are kept more than all the other varieties combined, for their eggs were always better in size, and have advanced to a greater extent, save in the case of Buffs, which have also been exceptional in that respect. The last-named variety, however, appeared upon the scene at a comparatively late period, when Whites had taken a firm hold, and they have been chiefly in the hands of exhibitors.

Whilst it is true that Wyandottes have fair meat qualities, the colour of flesh, skin, and legs does not conform to European ideals. That has not been the case in America, where yellow flesh was thought to be superior to white. Perhaps it would be more correct to describe the colour of the flesh as creamy, rather than yellow, though in this respect there are considerable differences in the respective varieties. Whites show least the deeper tint of flesh and skin, Silvers following closely behind. Fattening and the use of milk give the flesh a superior appearance, but nothing can change the colour of the legs, and, as a consequence, these birds do not provide for anything but a second-class trade, however well they are furnished. For that trade they are excellent, and when fatted produce an abundance of flesh.

Acknowledging that the White variety is *facile princeps* among Wyandottes for utility purposes, and is likely to remain so, every effort should be made to improve the others, and, as already indicated, the Buffs should be very valuable by reason of size of egg. It may be that the newer forms will prove that they possess such qualities to an extent not hitherto suspected. As to these little is known at present. What is chiefly wanted with all is to improve the size of egg, to carefully conserve the natural vigour, and to recognise that the Wyandotte is essentially a general purpose fowl, with great winter laying qualities.

E. B.

THE CONFERENCE WITH THE FOX-HUNTERS.

By "HOME COUNTIES."

POULTRY-KEEPER: How about paying for those birds of mine?

FOX-HUNTER: Thought you had been paid.

POULTRY-KEEPER: A shilling a bird! What's the good of that to me?

FOX-HUNTER: How do I know foxes killed them all?

POULTRY-KEEPER: How do I know I'm alive?

FOX-HUNTER: But, really, this compensation business is no joke. Do you know our Fund is in three figures?

POULTRY-KEEPER: I know the number of birds I've lost will soon be in three figures.

FOX-HUNTER: You don't want to see hunting stopped?

POULTRY-KEEPER: Of course not.

FOX-HUNTER: You cannot make omelettes without breaking eggs. Foxes must have a change of food sometimes.

POULTRY-KEEPER: But honest cooks pay for the eggs for their omelettes.

FOX-HUNTER: Hunting costs ever so much more already than it did.

POULTRY-KEEPER: So does poultry-food, and wire netting, and house-rent.

FOX-HUNTER: Why don't you lock up your birds till the time of day when foxes are not likely to be about?

POULTRY-KEEPER: Fancy hens stewing in their houses on a summer morning till breakfast-time! Anyhow, it's my business.

FOX-HUNTER: Look at the benefit hunting is to the countryside in lots of ways!

POULTRY-KEEPER: How does losing birds benefit me?

FOX-HUNTER: If we paid all our claims nobody would be able to afford to hunt.

POULTRY-KEEPER: Why should you have your sport at my expense?

FOX-HUNTER: After all, hunting has as legitimate a place in country life as poultry-keeping.

POULTRY-KEEPER: One is a source of recreation, the other a source of livelihood, that's all.

FOX-HUNTER: I hate this spoiling the look of the countryside by covering it with rattletrap poultry-houses.

POULTRY-KEEPER: Who broke down my fences and spoilt my neighbour's wheat?

FOX-HUNTER: There always has been hunting.

POULTRY-KEEPER: And there always have been people trying to get a living out of the land, and other people doing things to keep 'em from doing so.

FOX-HUNTER: Now you do me an injustice. I gave a guinea to the N.P.O.S. last year.

POULTRY-KEEPER: How about paying for those birds of mine?

(*Conversation begins all over again.*)

IT has been something very much like this. And for how many years has it not been going on? Happily, the end seems to be in sight at last. It sounds too good to be true, but fortune is favouring the poultry-keeper just now. Twopenny eggs are in demand as they never were before; everybody is speaking well of poultry-keeping; hens are becoming quite a favourite topic in the daily papers. On the top of all this there is the prospect of a settlement with the fox-hunter. We are glad to feel that we may have had some little share in bringing things to a head. It was impossible for any man open to conviction to read the mass of evidence which was accumulated and weighed in these pages in December, 1908, and in the first two months of last year, without coming to the conclusion that, imposing though the hunting-men's case may be, the poultry-keepers' is even stronger. And now the Conference which was suggested in the ILLUSTRATED POULTRY RECORD is to be held. Last month, as a preliminary to the gathering, the representatives of the poultry world met and formulated a communication to the Masters of Fox-Hounds Association. That document reflects credit on those who framed it. It wisely begins by disclaiming "any hostility to fox-hunting as a national sport." It is a great gain to have so much ruled out of the controversy. The next stage was to put on record, as the assembled representatives of the Poultry Club, the N.P.O.S., and the U.P.C. did, that the time has arrived when "some steps should be taken with a view to preventing the loss arising from the depredations through foxes, and of securing fair compensation where such loss has arisen." The phrasing is worthy of a Lambeth Council. After this came the decision to apply to the Masters for a meeting.

We do not wish to say anything this month which can conceivably have any disturbing effect on this meeting. In any case, it would be inexcusable to use strong language. The day for that is past. Our case is so strong that the cold facts are sufficiently impressive. We showed in our columns that poultry-keeping is increasing, and that there is no dearth of foxes, the numbers being admittedly added to by importations. We proved unquestionably that serious grievances exist; that, despite the large sums distributed by many Hunts in full satisfaction of poultry-keepers' claims, numbers of other poultry-keepers, in different parts of the country, are suffering loss. When all has been said that can be said as to the benefit of fox-hunting to the countryside, these poultry-keepers' losses remain. That some poultry-keepers do directly, or indirectly, benefit by the purchases made by hunting-men is true. But to trace the advantage obtained by a large proportion of poultry-keepers whose birds have been preyed upon by foxes, calls for the exercise of imaginative ability of no mean order. Miss Galbraith, whom it is a pleasure to quote because she contrives to discuss the subject with humour, has shown in her pungent way that poultry-keepers are not necessarily producers of hunters' oats or hay, and that if they are producers of oats and hay, the horses which they may breed are more likely to be carthorses than hunters. She has also drawn attention to the fact, patent enough to every resident in a hunting country, that the horse-purchasing power of hunting-men has decreased of late through the introduction of motors. Granting that the hunting-men put money into circulation in other ways, surely the poultry-keeper does the same, and to a substantial amount.

"Two poultry farmers alone," says Miss Galbraith, "have a united corn bill of 2,000

guineas per annum. The smallest poultry farm has a meal bill of at least £100 per annum." As to the argument dwelt upon by us that undue pressure is brought to bear on poultry-keepers in some districts, the evidence accumulated in the RECORD has undoubtedly been augmented during the last twelve months. This is a feature of the subject which is particularly unpleasant. Only the other day the writer heard a poultry-keeper say, "We are not allowed to kill foxes," in a tone which might have led a casual hearer to imagine that he was a servant or tenant of a hunting estate. As a matter of fact, he was nothing of the kind; but so well has the sacrosanct character of Reynard been impressed on the countryside that this man might be depended upon to lift no hand against a fox, however much he might suffer. The idea that the fox is a wild creature protected by nothing but custom and a feeling of neighbourliness towards those who find pleasure in its pursuit had never dawned on him.

We believe that the Conference, when it is held, will come to an equitable conclusion. We should be less than candid, however, if we did not say that the certainty of a solution of the problem being found depends largely on the fact that in the last resort the poultry-keeper has the upper hand. Few of our readers would like to see the fox exterminated, and most of them see many attractions in hunting; but many poultry-keepers would undoubtedly be prepared to start fox-killing if the Hunts could be brought to reason by no other means. We do not believe that it will be necessary to proceed to extremities. In this wicked world, however, the armed man goes into conference with greater power than the unarmed. It will clarify the situation if the determination of a considerable body of poultry-keepers to make sure for themselves that they are not robbed is made manifest to the Masters of Hunts. We entertain no doubt that that will be sufficient. Hunting-men as a class are good fellows, and have no notion, as the *Field* said the other day, of taking their sport at anyone's expense but their own. They have only to realise, what some of them undoubtedly fail to realise at present, the real character of the grievance from which many country districts suffer for them to make an effort to put things on a fair basis. If to put things on a fair basis should mean the crippling of some Hunts, we should be very sorry; but if we have to choose between a sport and an industry, our vote, and the vote of all sensible men, must be given on behalf of the industry. Justice must be done even if some Hunts have a hard time of it. If any Hunt has to go under, it will be because in the country it is working hunting has become something of an anachronism.

JOHN HARRIS, OF LISKEARD.

By EDWARD BROWN, F.L.S.

ON March 2 were laid to rest in the parish churchyard of Liskeard, Cornwall, the mortal remains of one whose name as a breeder of and authority on game-fowls is known the wide world over, and whose death will be sincerely mourned by many who did not know him except by his pen-name, "Game Cock," or as plain John Harris. His influence has been great and will continue. Nearly all the modern writers on poultry who have dealt with the game-fowl owed much to his knowledge and help. Tegetmeier, Wright, Weir, and Atkinson drew

MR. GILLIVER. MR. JOHN HARRIS.

from his resources, as I have frequently done. Upon this aspect of poultry-breeding his information was encyclopædic. Last November it was my privilege to spend a few hours with him to look over his wonderful collection of spurs and books, and to hear some of his

stories of past days. He promised that he would jot down some of these and send them to me, but, alas ! I fear that has not been done, and his fund of knowledge is lost to us for ever. My regret now is that I did not fully note many points in our conversation, but, in view of his activity of body, his clearness of mind and of vision, one could not anticipate that his end was so near, or that he was nearly 85 years of age. The tale he was capable of telling was indeed wonderful. Someone should attempt, from his writings and such records as remain, to deal with his career adequately. It would be better worth reading than many a pretentious biography, for he had very varied experiences over a long period of time.

To see John Harris as I bade farewell to him on Liskeard Station, small in stature, quiet in speech, reserved in manner, it was difficult to think that he was one of the most skilful and experienced cockers of his day, the last probably of those men who, apart from the sport itself, had studied breeding problems deeply and thoroughly. Though he knew me to be an opponent of cock-fighting as a pastime, that made no difference to our intimacy, which has extended over nearly thirty years.

John Harris did not live by cocking. Born at Linkinhorne in 1825, his early days were spent there, and he became in process of time assistant to his father, who was a road surveyor. Afterwards, when railways extended, they took up railway construction, accepting contracts in Cornwall, South Wales, and various parts of England. He was in the employ of the Great Western Railway Company in relaying the yard at Paddington. Nearly forty years ago he became permanent way inspector of the Liskeard and Caradon Railway, and afterwards manager of the Looe line, from which he retired in 1901.

Game-cock breeding was in his blood, for both his father and grandfather were devotees of the sport. The latter used to ride to Exeter for mains in that city, carrying the game-cocks in bags slung over his horse. When only four years old, John Harris was present at a big main and gathered up the feathers in the pit. The first fight in which he took a personal part was when 15 years old, and he came off successfully. His father would not interfere, saying that he must win or lose it himself. It is evident that the Harris family understood not only the art of breeding but also of training, for they were in request all over the country, and were brought into association with men of all ranks, some of whom expressed their appreciation by valuable gifts. We have no idea in these days of the extent to which cock-fighting was carried on. The great Earl of Derby sometimes ran 3,000 cocks in a year, and many others had hundreds of birds out in this way. We must not forget in this connection that the sport had been a national pastime for centuries, even as far back as pre-Roman days. Few thought of the cruelty involved, any more than do pigeon shooters or tame stag hunters in these days. That is no justification, but it may be an excuse. At a later period John Harris was in association with the famous Calicutt, who is supposed in his time to have bred 180,000 game-cocks. This partnership was remarkable, in that so long as it continued they never lost a main. One of the last public displays was in the famous Gallowgate Pit at Newcastle-on-Tyne, which building I remember as a boy, commencing on Easter Monday, April 1, 1850, and lasting eight days. In this were fought 239 battles, and the stakes amounted to 796 guineas. Matches were fought there and elsewhere for years afterwards, but semi-privately. An interesting story was told me some years ago by the late Robert H. Draper, of Seaham Harbour, a well-known exhibitor of Malays and game-fowl under the name of R. Hawkins. He attended the last main at Newcastle. During the day he left for a few minutes, and on his return found the place surrounded by police. Seeing what had happened, he asked a constable what was the matter, pretending ignorance, when the reply came : "Young man, I should advise you to go home, thankful you are outside and not in," which advice he followed. That was the end of the Gallowgate Pit. That there is yet a good deal of cock-fighting is undoubted, but upon that point more need not now be said.

Knowing the class of fowl now kept in East Cornwall, the home of the Indian Game, it was surprising to hear John Harris say that sixty or seventy years ago all the birds bred in that district were white-legged and white-fleshed game, and at the time named the Plymouth people would not eat yellow-fleshed birds. These were sent in large quantities by wagon from Liskeard to Plymouth, whence some were shipped to London by the old steamers sailing from Devonport. Later the Indian Game was introduced, and that changed all.

The rise of the exhibition system to some extent provided a substitute for the cockpit, and John Harris was a frequent exhibitor and judge. But he was in deadly opposition to the change of type as represented by modern game-fowls, and had nothing but contempt for those who thus destroyed what he regarded as the most perfect of all poultry. The last time he exhibited was at the Crystal Palace Show of 1872, where he won a cup. After that came the deluge of what he regarded as elongated monstrosities, which, under the new ideals, he could not beat and would not breed. To the last he kept a few good birds, which he was always proud to show to anyone really interested.

His collection of spurs was not large but very fine indeed. Apart from the case presented to him by Charles Faultless, which he valued very highly, were others of all kinds, including a Roman spur found in ancient remains, really a pointed sheath for fitting over the natural spur. One pair were presented to Charles II. by Nell Gwynne, on which a heart and the initials "N. G." can be seen. He had spurs by Clay, Smith, and Duke, all well-known makers ; silver spurs, the secret of which is a lost art, sword spurs, &c. More than once John Harris said that he would like his collection to go into one of the museums, and, as the making of these implements has declined, it would be desirable if an attempt were made to secure them in this way.

WHO'S WHO IN THE POULTRY WORLD.

MRS. COMYNS-LEWER.

READERS of the poultry Press will not need to be told that Mrs. Comyns-Lewer is the editor and principal proprietor of the *Feathered World*. She has occupied that position for nearly twenty years, has raised the circulation of the paper to 60,000 copies, and can rightly claim to be one of the unique "successes" in journalism. It gives us, therefore, very great pleasure to include her in our gallery of notabilities, and to give some details

MRS. COMYNS-LEWER.

of a career that has been one long plucky fight against sorrow and adversity for the fame and fortune which are hers.

The daughter of Major N. D. Garrett, she was born in India, but left that country at the age of six, and lived for some years with her grandparents in England. Her parents then returned and took a house in Suffolk, which remained her home until she had come of age. At this period there came money troubles to the family, and Miss Garrett, after a life of comparative luxury, suddenly found herself obliged to earn her own living. A typewriting business, which she helped to establish out of very small beginnings, enabled her to maintain herself. It was while she was engaged in this work that she met the late Mr. Comyns, editor of *Poultry*, and subsequently she became his wife.

Four years later the *Feathered World* was started by Mr. Comyns, but eighteen months afterwards he died, leaving his widow with two children and but little provision besides the still young paper. Shortly afterwards, also, a third child was born. Mrs. Comyns, however, had already gained an insight into the working of the journal, and at once assumed entire control. Its great success under her management is well known; and one need hardly point out that this was wholly due to the editorial and business talent of its proprietor. In 1896 she married Mr. S. H. Lewer, publishing manager of Messrs. Cassell and Co., and a colleague of the late Lewis Wright; and such became the importance of the *Feathered World* as a business concern by 1906 that in this year Mr. Lewer decided to retire from his old firm and give his undivided attention to the paper's interests. Mrs. Lewer will complete the twentieth year of her editorship of the *Feathered World* next December—a wonderful record for a woman who is only now at the prime of life.

MR. A. LOCKLEY COOK.

AS the inheritor of the big business created by the late William Cook, of Orpington fame, Mr. A. Lockley Cook is perhaps as well known as anybody in the poultry world. The second son of his father, he lives at the original Orpington House, and in partnership with his sister, Mrs. Clarke (the eldest daughter of the late W. Cook), directs the big concern associated with the name. Under the management of this energetic partnership, the business has been extended and developed. It is about three years since the necessity of abtaining more land led to the acquisition of the neighbouring Newburn Farm, a description of which appeared in the ILLUSTRATED POULTRY RECORD for October, 1908.

Mr. Lockley Cook is only 32 years of age, but he has seen a good deal of the world. Educated at Vale College, Ramsgate, he afterwards sought that wider education which travel alone can give in frequent journeys abroad, to the Continent, and to South Africa. He spent some time in Durban and Johannesburg, was occupied with bush-clearing contracts in Zululand, and was connected with the Government farms at Elandsfontein. This general experience was invaluable to him when he returned to Orpington House and took over the duties of selling birds, arranging contracts, interviewing clients, &c. Apart from his poultry interests, he is devoted to outdoor pursuits, his principal hobbies being yachting and motoring. A reference to his marriage, which took place recently, will be found on another page of this issue.

MR. A. L. COOK.

HERR W. A. KOCK.

OPPORTUNITY and ability can accomplish much in a comparatively short time. Herr W. A. Kock, who is Adviser to the Danish Society for Profitable Poultry Culture and Correspondent of the ILLUSTRATED POULTRY RECORD in Denmark, is an example. A young man, for his age is thirty, he has seen much and done much. The development of the Danish poultry industry gave the opportunity, and his own ability has taken advantage thereof. A breeder of poultry almost from childhood, he has gone through various grades, inclusive of prizes at leading shows, and at these has often acted as judge. His attention, however, has been largely in the direction of practical breeding, and in his official position, to which he was appointed seven years ago, he is able to exert considerable influence, more especially through the Breeding Stations. The Danish Ministry of Agriculture has wisely expended money in sending its experts to study conditions abroad. In 1902 Herr Kock was sent on a tour of observation to England, Belgium, and France, extending over a period of four months, and two years later he visited England, Scotland, Ireland, Belgium, Holland, and Germany, the results of which visits have been important. Last year he was sent by the Minister of Agriculture to America for the same purpose. It will be remembered that at the Second National Poultry Conference, in 1907, Herr Kock read a paper on "Co-operation in Relation to Marketing in Denmark." Part of Herr Kock's work consists of lectures in the rural districts of Denmark, and last year he gave a series before the Royal Danish Agricultural Society on "Poultry Breeding in Other Countries." He acts as one of the jury awarding prizes for the best kept poultry in various districts. In addition to contributions to various papers and preparation of the Annual Reports upon the Breeding Centres, Herr Kock published in 1906

HERR W. A. KOCK.

an excellent work entitled "Poultry Breeding in Northern Europe, with Special Regard to Fattening of Chickens and Breeding of Winter Fowls." He was also a member of the committee under the chairmanship of Herr J. Pedersen-Bjergaard, to whose labours is due the Standard published a few months ago. An interesting personality, with great industry and wide knowledge, Herr Kock occupies a high position among Continental exponents of modern poultry culture. Recently he was elected an honorary member of the National Poultry Organisation Society.

MEN AND MATTERS.

By W. W. BROOMHEAD.

Mrs. Wilkinson's Poultry.—The Teamster.—Croad Langshans.—The Blue Langshan.—The Rose-Comb Boom.—Rose-Combed Leghorns.—Does Poultry-Farming Pay?—The Question of Ear-Lobes.

Mrs. Wilkinson's Poultry.

There can be no doubt that the best way to get ahead in the Fancy is to specialise; and the vast majority of those fanciers who have made a name for themselves have done so by being closely identified with one or at the most two breeds. It is so with Mrs. Wilkinson, and for many years now Orpingtons and Plymouth Rocks have been first favourites at Burrow House, Scotforth, Lancaster. Mrs. Wilkinson is no novice at exhibiting poultry, and the "proof of the pudding" lies in the fact that during recent times she has won about a hundred silver cups at such important fixtures as the Crystal Palace, the Grand International, Birmingham, Manchester, Liverpool, Hayward's Heath, and the Club shows, not to mention other first-class exhibitions. It gives one some idea of the value of the Scotforth strains. Not only so, but for four years in succession Mrs. Wilkinson has won the champion trophy for Buff Orpington cockerels at the Buff Orpington Club Show; and for three years in succession the champion trophy for Plymouth Rocks offered at the Grand International Show has gone to the Burrow House yards. I know that one has to be very careful nowadays when referring to the wins of prominent exhibitors, since the term "Breeder of champion challenge cup winners" is apparently not altogether understood. But Mrs. Wilkinson's list is, indeed, a strong one; and, if there is such a thing as a championship in the poultry Fancy, which some people question, then the claim for the Burrow House birds is a just one and will take some beating. We have heard much of the way that novices are supposed to be treated by the so-called professionals; but it says a great deal for the yards in question that twenty-five silver cups, in addition to innumerable first and special prizes, have been won by those poultry-keepers who have purchased either stock or eggs from them, and at shows where prominent exhibitors were competing. A great specialty is made of properly-mated breeding-pens or trios, and there is no doubt in my mind that such a plan is much better for the budding fancier than to invest in eggs. I have nothing to say against the buying of valuable sittings of eggs; but it is much better for the novice to start off with a pen mated by a prominent fancier who has mastered the art of selecting birds for breeding.

The Teamster.

That the teamster continues the even tenor of his way, despite the "mud" that has been occasionally thrown at him, can be verified by a glance through some show reports of recent events. One of the best-known and most highly-esteemed fanciers, who can always send a strong and varied lot of birds to a poultry show, is Mr. Robert Anthony, of Euxton, near Chorley, Lancs. And few can honestly grudge him the honours which his fowls gain, since no one can beat him at getting a bird ready for an exhibition and penning it in the best possible condition. Some of his latest records are twenty first, thirteen second, and four third prizes at the late Dublin Show, and eleven first, two second, and four third prizes at Carmarthen. Although this sort of thing undoubtedly pays, there is no question that the expenses attaching to the showing of big teams are very heavy, since it is rare indeed that Mr. Anthony's birds go to a show unattended either by himself or his son. The Euxton farm is an extensive one, and it is purely and simply a fancier's yard.

Croad Langshans.

Evidently the Croad Langshan is becoming popular. Wherever classes were provided for it at the shows last year, a representative display was always forward; and it was pleasing to see new names among the list of prize-winners. One fancier who did well with the breed last season was Mr. C. H. Murton, of Newton-Flotman, Norwich. Besides winning first prize with a cock at the Club Show at Bromsgrove, which bird also secured the chief award in the Croad Langshan class at Diss Show, Mr. Murton bred three pullets which were awarded first prize at Hayward's Heath, a similar award at the Dairy, and second prize at Leeds. He informs me that he has had quite a brisk demand for pullets, and he anticipates a good season during the present year.

The Blue Langshan.

There is no doubt that the Secretary of the Blue Langshan Club does not intend the grass to grow under his feet this year, and he is doing all in his power to bring before the public the claims of the Blue, so that it may be better supported than has hitherto been the case. In a letter which he sent to the Press recently, he says: ". . . I have always found among non-fanciers, farmers, &c., a belief that the Blue hens lay best—a belief that even the booms in Black, Buff, and White have not been able to supplant entirely. I deduce, therefore, that as soon as the present boom in Blues reaches the class I have referred to, it will be as pronounced and as long as either of the others." There is certainly one thing to be said in favour of the Blue Langshan—namely, that with the exception of the Andalusian it is the only fowl of the colour which has been bred true to colour and type for many years; hence it does not present so many difficulties to the amateur as do the recent introductions—Blue Leghorns, Blue Orpingtons, and Blue Wyandottes, to name only three. It must be admitted, however, that blue is not the easiest colour to get to perfection in any race of fowl, no matter what its age, although in the case of the Langshan, as in the Andalusian, the heavier lacing and darker hackles remove some of the difficulties. The Club, nevertheless, purposes making a strong bid for support by fanciers when the show season comes around once more; and since it is in a sound financial position and has three valuable challenge cups, it appeals for new members, especially such as will help to bring the variety into prominence. To encourage fanciers to take it up, the hon. secretary (Mr. William A. Jukes, Ballymena, St. Mary Cray, Kent) will gladly place at the disposal of anyone willing to join his club his experience of the breed, and he has the promise of support from prominent members who will assist him, in order to increase the membership roll, in starting amateurs with breeding-pens at very moderate prices.

The Rose-Comb Boom.

No doubt about it, the day of the rose-comb is at hand. But candidly, is it not time that things steadied up a little? Mr. Pettipher, in his notes on the rose-comb boom on page 302, asks: "Why not single- and rose-combs of every breed? . . ." Is this "writ sarcastic," or is Mr. Pettipher in earnest? What a fine jumble it would be. Every sport imaginable would be nourished, and the very bottom would be knocked out of fancy breeding. What a time Wyandotte and Hamburgh fanciers, to mention only two sections, would have of it if each single-combed sport could pass muster! And when we had settled the comb question, why not go farther and let any colour leg, any colour eye, and so forth, compete under the one head? Why not? Let us get back to the beginning again and start all over afresh. Why not clear out of our present stock and start off with the jungle fowl? We might just as well. Or does it suit some folks better to have a name for every sport, so that the wasters can be sold to a simple public at a higher rate than killing prices? Let breeders decide which breeds are to have rose-combs and which single, and let them kill off their sports for table purposes as they were wont to do in the days prior to this mad craze for "something new."

Rose-Combed Leghorns.

Now that the Poultry Club Council has "set its seal of approval" on the Rose-combed Black Leghorn, other varieties of that breed, similarly adorned, may boom. There is no doubt about it that the Black is now far removed from the Black Wyandotte, and that in general characteristics (except the comb) it is indeed a true Leghorn. I have at times seen specimens of most varieties of the breed with the rose type of comb, but in the majority of cases they have been lacking in character, out of keeping with the stamp one desires in a fowl of the Italian type. I hear that the latest addition to these sub-varieties is the Rose-combed Blue, which is being bred, along with Rose-combed Whites, by an Essex fancier. Writing of Rose-combed fowls and Essex makes me wonder how the Rose-combed Plymouth Rock will fare when it comes before the Poultry Club Council this year, as it assuredly will do. That it is a genuine Plymouth Rock there cannot be the slightest doubt, and I have ample proof in my own yards that it breeds as true as most of the old varieties.

Does Poultry-Farming Pay?

No doubt more than one reader of the Record asked himself this question on opening last month's issue and perusing the announcement that Mr. William H. Cook, of the Model Poultry Farm, St. Paul's Cray, Kent, had purchased the entire stock, plant, and goodwill of Mr. A. C. Gilbert, of the Swanley Poultry Farm, Wilmington, and that in future both farms will be managed by him. It is not more than four or five years since Mr. Gilbert established Swanley Poultry Farm, and it will be a matter of surprise to most fanciers that he has given up after such a short run. I was among the first to visit his place when he was setting up on his own account; and if ever poultry-farming promised to be a profitable undertaking, it was in those circumstances. I met Mr. Gilbert at the last meeting of the Variety Orpington Club in London, and he then told me that he was looking out for a purchaser for his farm. He gave me his reasons; and, without going into details, I think I can safely say that the poultry Fancy has not seen the last of him.

The Question of Ear-Lobes.

The note in last month's "Diary" on the colour of the ear-lobes of La Bresse is interesting. The writer says: "Our experience is that the best specimens are the latter (red lobed), and thus we support the decision arrived at." In my notes last month (page 304) I mentioned that the Poultry Club Council had decided to adopt the lobe colour (white) as given in M. Voitellier's standards of the French races of fowls. Turning for confirmation of this, I find that no less an authority on Continental breeds than Mr. Edward Brown, F.L.S.,

states that the lobes of La Bresse should be, in fact are, white or cream. No doubt the breed is essentially a table-fowl in its native land; but over here I think it will be kept solely as a layer, and the fact that La Bresse once won a laying competition, or came very near the top of it, somewhat bears out my statement. However, it is a point that wants clearing up, especially as regards the colour of the lobes; and the opinions of those who keep the breed will be welcome. Since writing the foregoing note I hear that the English Club for La Bresse has decided to adopt the white lobes, but to encourage the White variety only. In fact, it is rumoured that the club will be known in future as the White Bresse Club.

ORNAMENTAL GEESE.

By J. W. HURST.

THE goose, so long labelled and libelled with the epithet "stupid," is commonly thought of as a prosaic water-fowl that largely belies its description by spending most of its time on land grazing like a beast of the field. We hear something of its table qualities, and if its flesh is too oleaginous for our palate, we are at east familiar with its appearance as a "common object" of some farms, or in the show-pen as primarily represented by the chief utility breeds of domestication—the Embden and the Toulouse. Poultry-keepers, as such, are, however, not very generally familiar with the other species, the common knowledge being mostly confined to the before-mentioned domestic descendants of the Grey Lag or common wild goose. It would take too long, and be beyond the present purpose, to deal with the several lesser-known species, but—the opportunity having arisen—a few notes regarding two, the Cereopsis and the Egyptian, may be of some interest. Although these are to be found in various collections of ornamental water-fowl, both species have come under my more particular notice upon a farm in the South of England, where I was enabled to secure the accompanying photographs.

CEREOPSIS GEESE.
Photo by J. W. Hurst.] [*Copyright.*

EGYPTIAN GEESE.
Photo by J. W. Hurst.] [*Copyright.*

The Cereopsis goose, which is the single species representing the genus, is an Australian, and was at one time freely bred upon the farms of its native land, but although it is capable of acclimatisation, there is a frequent difficulty in breeding consequent upon the reversal of seasons in this country. They have, however, bred more or less successfully in the Zoological Gardens, and upon various ornamental waters. Last year one pair—included in the wonderful collection of water-fowl in the Duke of Bedford's park at Woburn—succeeded in rearing their young, but as they usually nest very early, the eggs are liable to get frozen. Writing last autumn, Mons. Pierre A. Pichot (member of the Acclimatisation Society of Paris) told me that he believed he was the only owner of Cereopsis geese in France at that time, and that it is years since any have been seen at the Gardens of the Society. He also stated that his birds have never shown any disposition to nest, though the gander is sufficiently attentive; the male bird has also become so aggressive and furious in attack that he has

to be more closely confined than when younger. I was also impressed with the unamiable disposition of the birds that I photographed, although they are considered less pugnacious than the Egyptian goose. The distinguishing characteristic of this species is the cere which, at the base of the upper mandible, covers the bill. The plumage is principally brownish-grey with some black in the tail and on the shoulders, and darker brown spots unevenly distributed on the back.

The breeding possibilities of the Egyptian goose in this country are indicated in the photograph, which was taken in a southern meadow in July—the young birds being mothered by a Sussex hen; but it must not be thought that such a sight is other than rare, although there does not appear to be any very great difficulty in rearing this species in confinement. The youngsters are very shy, but extremely interesting, and at the age shown broadly exhibit the scheme of plumage colouring and the distribution of white and reddish-brown—together with grey, black, fawn, and chestnut—that characterises the adult appearance; but the early shyness gives place to a subsequent development of savagery, that is the main drawback to breeding the species more generally.

THE COMPARATIVE VALUES OF FANCY POINTS.

By WILFRID H. G. EWART.

IT is always rather a debated point as to what should and what should not be considered of prime importance in a show bird; also, as to what method should be pursued by a judge in assorting his classes. We all know—at least, those of us who have been in the Fancy for any length of time—that judges of poultry differ in their ideas to a rather remarkable extent; that some have fads and that others are most particularly anxious to abide by the official standards. The official standards are tolerably elastic, and if a gentleman chooses, he may interpret them according to his own sweet will. So we find that there are people—usually discontented people—who strongly recommend the use of a score-card and a pencil after the American fashion. Possibly the merits of this system are not very great—a man gets tired of working it at a good-sized show. Still, it has its advantages.

Now, as regards the comparative value of fancy points, would not a system of scoring tend to bring those values a bit more into line? The scores of the different birds in "the money" would, I imagine, be ticketed on their respective pens; and a judge would conceivably be far less inclined to place his faddist's value on a certain point if his fad had to be disclosed on a score-card—a disproportionate award of points might bring him a caution from the Poultry Club. You see, these partialities are not quite good for competition and the Fancy in general. They are not fair. In course of time a judge's strong predilection for head points in any breed would become well known, and it is a recognised fact that the bird with the good head will win its class. Judged strictly according to standard, this particular bird might deserve at best third prize. Whereas the standard names fifteen points for comb, &c., the individual judge may, perhaps, place twice this value on the same characteristic. We all take note of these predilections—of course we do—and a certain bird is sent to suit a certain judge. It is perfectly natural. The objection is that under such circumstances the best all-round exhibit does not always win.

Often and often I have listened to discussions about the comparative values of type, colour or markings, and size. It is odd — very odd — how people absolutely disagree on such an important matter. I find that the majority consider type the main thing, a great many go for colour and markings, and a certain number stand out for size. Of course, we all know what the tendency of a breed or variety is — to which extremity it is bred. But that is not the point. There is a great deal of follow-my-leader business about the development of a variety; and because pencilling invariably takes precedence of shape in the show-pen, I do not think it altogether follows that the majority consider pencilling the more desirable point. This rather brings us back to the peculiarities of judges. Pencilling may have been made the great feature in the winners at a classic show, and thereafter people will neglect shape and go for this other point. So a "rage" arises, a boom in well-pencilled birds; and the great majority of judges will drift in the same direction because it is understood to be the right thing.

To return to the question of this comparative value of type and colour or markings, it seems to me clear enough that the former should be the prime consideration in any breed. After all, type is the breed, colour common to many races, and marking the distinguishing feature between varieties. We have a White Orpington and a White La Bresse side by side, and practically the only difference between them is in type. We see some Gold and Silver Wyandottes which are not Wyandottes at all; and a great many Buff Orpingtons which are not Orpingtons. For the latter there is great excuse, but when one conjures up the beauty of Wyandotte type one wonders that two of the family should flaunt it. In many ways this Gold and Silver Fancy resembles the Plymouth Rock Fancy; and perhaps similar causes are at work in both cases.

If you refer the question of type, colour or markings, and size to any recognised judge, he will always declare for one of the first three and never for size. Yet I firmly believe that in many breeds, so far as the winning of prizes is concerned, size is the most valuable asset to have on one's side. Though an all-round judge, when he says he goes for type in the first place, is doubtless speaking in perfectly good faith, I doubt whether he actually does. With a man who has a characteristic fad it is different, but in the case of a judge who has to work through a whole show, I have always found size to be of very great value. He (the judge) goes along the row of pens, and the big, massive Wyandotte or Orpington pulls him up at

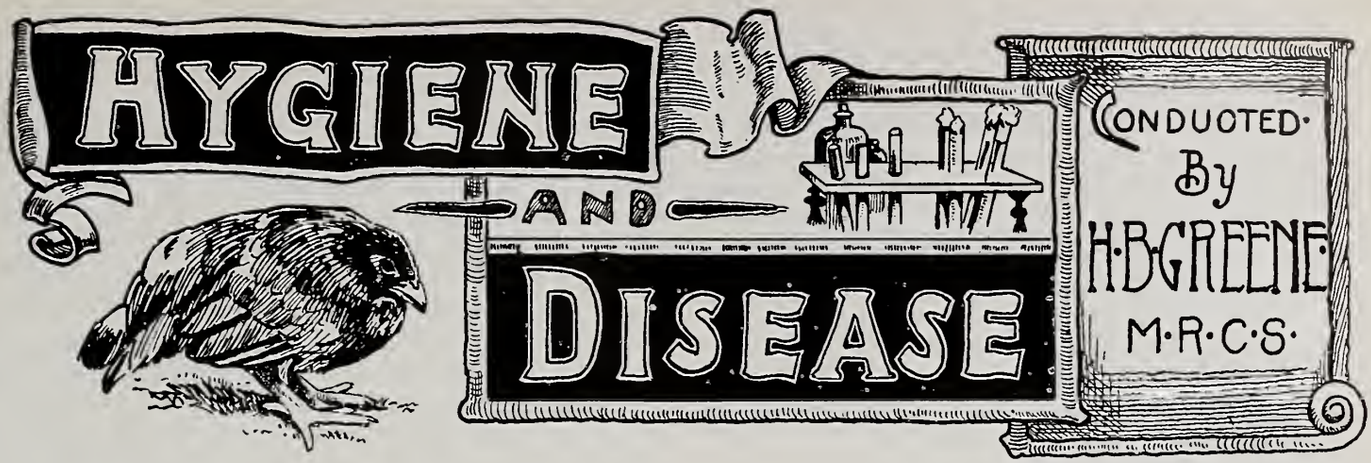
once. It may be a coarse bird of moderate shape and colour, but as often as not it will beat another that is full of quality—when carefully weighed up—and does, in fact, win the class according to standard points. Somehow, size does make a tremendous difference, and, in my opinion, the actual value of a really good specimen that fails in this respect is just about halved.

In a way, the contentions of the few people who place size before everything are justified. When a general tendency towards decrease in size is noticed in a breed, it often happens that that breed degenerates from every point of view. It declines in popularity, and, of course, this is the most serious danger that can confront it.

A BLACK SPANISH PAIR. [*Copyright.*

THE BLACK SPANISH.

"THE decline of the Black Spanish" is said to be a standing example of how the fancier in his craze for extreme points has ruined one of the best utility breeds of the day. But the White-Faced Black Spanish is not entirely defunct, even in England, where it has gone right out of fashion for exhibition purposes, and where for utility it has been superseded by the Black Minorca, or the Red-Faced Black Spanish, as it was once termed. No doubt its chief characteristic from a fancy point was somewhat overdone, but it still remains a splendid breed for the show-pen and a first-rate layer. For longevity and for juvenile appearance when advanced in years, the Spanish fowl can still hold its own. It is by no means rare to see five-year-old hens exhibited as fresh as pullets, and hens of the breed have been known to reach the ripe old age of fifteen years and lay to the last. What more do poultry-keepers require? It is generally supposed that the Spanish is of most delicate constitution; but if the birds are allowed their liberty from birth and treated in a rational way, they will be found to thrive well. They have been known to do well in the coldest and wettest parts of Lancashire, on stiff clay land, when kept out of doors and allowed to range in an orchard, roosting in the trees in all sorts of weathers. One thing in their favour is that they are small eaters; and although the females are non-sitters, and good layers when reared in a hardy manner, the breed is by no means to be despised as a table-fowl. Although not kept to any great extent in this country at the present time, there are, nevertheless, some really good strains of Spanish to be found in different parts; and a turn of fashion's wheel may bring it into favour once more.



POST-MORTEM EXAMINATIONS.

We have made arrangements by which post-mortem examinations of poultry and game can be effected for our readers upon the following conditions :

1. *The specimen is to be forwarded postage or carriage paid and securely packed to "Biologist," 297, Trinity-road, Wandsworth Common, London, S.W.*
2. *The fee of 2s. 6d. (stamps will not be accepted) must be remitted with each specimen and a letter giving particulars of feeding and housing, or any symptoms which were observed before death.*
3. *Birds should on no account be addressed to the office of the paper. If forwarded there they will be returned to the sender.*

It is recommended that specimens be dispatched by parcels post, where practicable, and as soon after death as possible. A reply will be received by letter, defining the disease, its cause, treatment, and prevention.

Blood Spots in Eggs.

We are frequently asked to account for the appearance of dark spots occurring in the yolk of eggs. If the spot has been observed on cutting the top off a boiled egg, it will be of a dark slate-blue or black colour and as though attached to the membrane of the yolk. If found in the raw egg, the spot will be a bright crimson like blood, which indeed it is. The spots generally occur singly, and are never larger than a pea. To understand the presence of blood in eggs, one must trace back the process of the formation of the ovum to the stage when the ripe yolk becomes detached from the ovary. When this separation is effected at the right time, and there is no abnormal congestion of the blood-vessels of the ovary, it should not be accompanied by any hæmorrhage. Until the yolks are mature enough to leave the ovary, they are connected with the blood circulation in that organ and adherent by a slender pedicle. If the pedicle breaks prematurely—and such an accident probably takes place, for instance, when a hen is suddenly frightened or chased—the result might well be a speck of blood at the broken point on the yolk. Or if, again, there is some congested state of the ovary from cold, over-stimulation either sexually or in the matter of feeding and the free use of spices, we would expect to find the blood spots in a number of successive eggs until such time as the congestion abated. When blood spots are found in a number of eggs and these eggs are all known to have been laid by the same hen, she should be placed in a pen by herself fed on a reduced ration of wheat or oats with green food, and given a grain of calomel and a sixth of a grain of tartar emetic in pill. But if a number of hens in the same run are laying the blood-stained eggs, the remedy will be found in an alteration of a too stimulating diet or in the withdrawal of the male bird for a time from the run.

Infected Incubators.

At this time of the year much time is spent by the poultryman upon renewing of tainted soil, cleansing of houses and runs, and disinfection of coops and chicken-brooders. And a very good time it is for work of the kind. But how seldom is attention paid to the disinfection and cleaning of the incubators! A hasty dusting with a feather-brush, the removal from the egg-drawer of fragments of shells, left perhaps from the last hatching, and attention to the lamp and flues are held to suffice. And yet it is certain that disease of an infectious type once introduced into the egg-drawer of a machine may be harboured—nay, even incubated—and spread from generation to generation of fresh hatches of chicks so soon as they emerge from the shell. And even during its sojourn *within* the shell it is probable, in the light of recent research, that the chick as soon as it becomes viable can be infected by air-borne bacteria that have entered the egg by way of the porous shell. But it might reasonably be asked, How do the bacteria come to the incubator in the first instance? The answer to the question is that they are introduced on the eggs themselves, having been transferred from an infected hen in process of laying or from a dirty nest-box. We have recently had under notice an instance where an owner lost thousands of chicks, in three successive years, from a disease that was undoubtedly of the nature of an infectious blood-poisoning. Most of the chicks died within a week after hatching, and the post-mortem appearances in several examined were identical and unusual. Strange to say, the breeder affirms that the same post-mortem appearances were noted by him in chicks dead in the shell, and, moreover, *in many that had not lived*

longer than the fourteenth day of incubation. It is quite permissible to conclude that the disease was of bacterial origin, since micro-organisms were present in large numbers in the livers and spleens of the dead chicks, and that the infection had been constantly active within the incubators for three seasons. The history of this unfortunate experience suggests the idea that very many of the losses in dead chicks and "dead in shell," now put down to faults in heat, moisture, and ventilation, should, if they were properly investigated, be laid to the charge of infected incubators. Two morals are obvious. Do not neglect the disinfection of incubators, and in the event of a high mortality in chicks, take the precaution to have one or two of the victims examined and the circumstances thoroughly investigated.

Onions.

With vegetables just now scarce and dear, and flower gardens in a stage of culture that precludes their use as a scratching paradise for fowls, the town fancier is puzzled to provide green food. He should not, however, forget that onions are a good and by no means extravagant substitute. They have a high nutritive value, and one or two will go far if chopped small and mixed with the soft food. The only drawback to their use is that they are said to flavour the eggs. But then, that is after all a matter of taste! For young chickens, also, their value is not as fully appreciated by the poultry-keeper as it has for long been by the breeders of turkeys. It is well known by fanciers that onions as well as linseed impart a glossiness and sheen to the plumage, and if the health of a bird is to be judged, like that of a horse, by the condition of its coat, then it is safe to assert that poultry derive benefit from anything that adds a lustre to the feathers. Onions, therefore, deserve an honourable place in the poultry-keeper's store cupboard, both on utility and fancy grounds.

CHICKEN CRAMP.

By H. B. GREENE, M.R.C.S.

(Concluded from page 319)

THE three varieties of cramp that we have so far been considering possess, in regard to their causation, a feature shared by all of them, in that the causal agent in all three is derived from *outside* the system. In muscle cramp it was traced to a mechanical interference with the natural play of the leg muscles; in thermal cramp to excessive heat improperly applied; while rheumatic cramp is generally associated with damp surroundings either of the atmosphere or of the fowl run. The two varieties of the ailment that remain to be described—viz., Gouty Cramp and Rickety Cramp—differ from the others in being caused neither mechanically nor by warmth or wet, but are brought about by chemical changes in the blood constituents, in each instance promoted by the administration of unsuitable food. To put it concisely, the cramp that arises from Gout or Rickets is but one of a number of symptoms occurring in two diseases which owe their origin to a faulty dietary. Here the mismanagement lies in the feeding; in thermal, rheumatic, and simple muscle cramp it lies in the housing.

GOUTY CRAMP.—If the term gout is taken to imply the symptoms consequent upon an unnatural amount of uric acid in the blood and a failure on the part of the kidneys to get rid of the excess of uric acid and urates in the system, then there can be no doubt that fowls suffer from gout in its typical form. Turkeys, ducks, and geese are not exempt, and it is noticeable that while common enough in the poultry-yard, gout is unknown among other animals on the farm, or in those domesticated by man, with the exception of an instance or two observed in dogs. That it should occur so frequently among birds is not so remarkable if we reflect to how great an extent the avian system is dependent upon the kidneys for the proper elimination of the waste products of the blood.

It was the fashion in the last century to lay great stress upon the part played by hereditary transmission of gout in man. It is much more likely that the repeated appearance of gout in succeeding generations of a family was to be attributed to an inheritance of the environment of habitual high living rather than to any direct transmission of the disease by way of the line of succession. Nor would it be justifiable to take any other view in the light of experience of gout as it occurs in the poultry-yard. There it is met with at almost any age from a fortnight upwards, but is most common in chicks of five or six weeks old, especially if brooder-reared, in chickens of three or four months undergoing the process of fattening for table, and in older birds when overfed and denied range for exercise.

From these facts it may be gathered that the cause of gout in fowls and chickens is to be looked for in overfeeding with certain food elements conducing towards the formation and accumulation of uric acid in the blood, and to its deficient excretion by the kidneys. Such food elements are meat and green bone, peas, beans, brewers' grains, or any proprietary meals and dry mixtures which contain them in too rich a proportion. The more meat there is in the diet, the more rapidly will the gout appear but rapidly-growing chickens with facilities for exercise and hens in full lay are able to resist the evil effects of a heavily nitrogenous diet for a surprising length of time.

There are many characters about the cramp of gout which help to distinguish it from that of other varieties, and if the other signs of gout present are noted, it is not difficult to make the distinction. There is from the outset a disinclination to use the leg, rather than any marked sign of contraction from muscular spasm. The muscles of the leg, moreover, are not wasted; on the contrary there is swelling, and in the acute stage heat, but chiefly in the region of the joints, any of which, from the hocks downwards, may be affected. Sometimes the corresponding bones in the wings are attacked, but whatever be the region, the swelling and heat are shortly succeeded by the appearance of hard excre-

scences of the colour, size, and consistence of split peas. They are, in effect, the chalk-stones of gout, and when they burst, or are opened with the point of a lancet, their contents appear to consist of a soapy, dry substance, in which microscopic examination will reveal uric acid crystals. When chicks are attacked with gout it is seldom that a number are ill at once, and with the exception of loss of appetite and the passing of white milky excrement there is little to indicate, if one excludes their crippled condition, that the sufferers are in a bad way. In the early stage at least of the disease they seem plump and well nourished, but as the kidneys and other vital organs become impaired, anæmia, diarrhœa, exhaustion, and finally death by convulsions ensue.

The treatment of gouty cramp, whether in chicks or adult birds, is first of all to make such a drastic alteration in the dietary as to ensure that it contains very little of the nitrogenous elements. All meat, green bone, or any of the other foodstuffs rich in albuminoids should be at once omitted, at least for some time, and where chicks are concerned it must be remembered that many dry-feed mixtures on the market contain much too high a proportion of peas.

The daily allowance of food should be reduced and chosen from barley-meal, middlings, skimmed milk, boiled wheat and rice, together with fresh, green vegetables. Food should not be left in the run after the birds have fed, the interval between the meals should be long enough to allow of their becoming hungry, and every inducement given to promote scratching exercise, The gouty subjects, if young chicks, may be given half a teaspoonful of olive oil as an aperient twice a week. In the case of older chickens and fowls, a grain of calomel may be substituted. In addition, bicarbonate of potash and citrate of potash are useful in doses of from three to six grains of each salt, according to age, twice a day. The remedy is best given by hand in a pellet of soft food, as the doses are thereby ensured, but proportionate quantities can be mixed, if preferred, with the drinking water. The swollen joints will be relieved by fomenting with hot solutions of washing soda, and chalky concretions can be lanced and their contents removed.

Rickety Cramp.—The disease known as Rickets is one that is chiefly concerned with growth and development, particularly of bones. It is marked by softening of the bones, which as a consequence become knotted at the joints and curved in their length, and are found to be very deficient in lime salts, so necessary to their strength and stability. Since these lime salts are conveyed to the bones by the blood, it follows that a serious lack of lime salts in the food for a prolonged period will result in a manifestation of this disease, that is, provided that the subject is of an age young enough to be affected. For Rickets is a disease of youth, and as it occurs in poultry, it is limited to chickens between the ages of ten weeks and six months. Indeed, Zürn, a well-known authority on poultry disease, mentions three months as the earliest age of occurrence in chickens. This age limit is useful to bear in mind, for it enables us to exclude Rickets as a possible cause of cramp in chickens that have not attained to the age limit. In a case of chicken cramp in a bird over ten weeks old, we may suspect it to be of rickety origin, if we find knotty swellings on the joints of legs or wings, softening of the bones and sometimes of the beak, crooked and pliable breast-bone, crooked spine (roach back), and carriage of the tail to one side (wry tail). There is an absence of pain and tenderness about the swollen joint, in this respect so different from the condition in other forms of cramp before described, while on the other hand there is much more general deformity, pallor of face, and emaciation. From rheumatic and gouty cramp it may be distinguished by its slower onset and more chronic course. Chickens fed almost entirely on potatoes, rice, and bread during the first two months of life are almost sure to develop Rickets in the third month. Prevention is, of course, preferable to cure, but if a flock of chickens show signs of becoming "rickety," the diet must be carefully revised and altered where required. Half a teaspoonful of "Parrish's" Chemical Food to every chicken should be mixed with the soft food, and the latter should include a liberal allowance of green bone. Cod liver oil in doses of half a teaspoonful daily has also been recommended. This also may be conveniently administered in the morning mash.

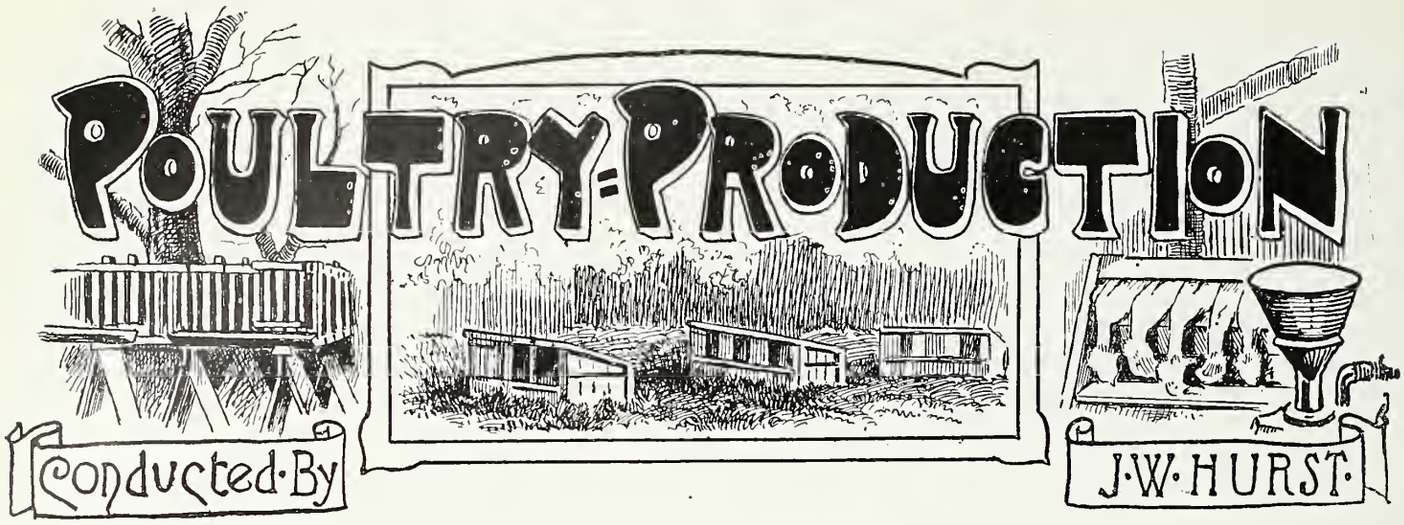
The cramp of Rickets is noticeable more as an inability on the part of the legs to support the weight of the body than a painful muscular spasm.

From all these considerations it will be recognised that chicken cramp is by no means an uncomplicated symptom, and that it is important in any given case of cramp to ascertain to what group it can be relegated in regard to its causation before endeavouring to cure it. In this, the most successful poultry-keeper will be he who is the most observant.

A USEFUL YEAR-BOOK.

"The Feathered World" Year-Book, 1910. Edited by S. C. C. Avis and the Rev. A. Whiteley, B.A. The *Feathered World*, 9, Arundel Street, W.C.

THE poultry and pigeon fanciers of the United Kingdom should welcome this venture, which is thoroughly well printed and illustrated, and will be found of real value as a work of reference. The book is divided into two sections, the first of which is devoted to poultry and water-fowl and the second to pigeons, and each section contains a chapter headed "Hints on General Management," including businesslike recommendations on housing, feeding, incubation, and hygiene; an exhaustive description of the various breeds, written by experts in them, and fully illustrated; lists of prize-winners at the leading shows of 1909; the specialist club shows of last year; and a "Breeders' and Exhibitors' Directory." A classified list of existing poultry and pigeon societies will also be found useful. The matter of this publication and its arrangement reflect the highest credit on its editors.



The Growing Period.

Very much depends upon the character of a season, and the influence of the weather that prevails during the growing period—and particularly April—has a far-reaching effect in poultry-production. The experience of last spring will be a sufficient example, in the light of subsequent events, relative to both breeding and egg-production, and one that will not be forgotten by those who are actively engaged in such operations. Countrymen who talk of "growing weather" thus succinctly describe conditions that are favourable for growing chickens as well as crops—the conditions of a normal spring. It is a mistake to suppose that an occasional shower will injure growing stock, unless it be the degenerate young turkey. The very best weather for raising chickens is an alternation of shower and shine. It is then that the rich earth yields foods, and hens running free with chickens show the youngsters where and how to find it ; it is then that the free-ranging birds grow as none others will in different circumstances, and the cost of production is at its lowest in proportion to the rate of advance in growth. Nevertheless, even when the conditions and general circumstances make it possible to grant the hens the liberty allowed their broods, the coops and shelters must be readily available for their protection in case of need. There is a difference in showers, especially in English April showers. Anyway, the growing stock must be out in the open if they are to go on growing and attain that degree of maturity that is most desirable for the several purposes of their growth.

Management of Turkeys.

Turkey hens that are of the right age and have not et commenced laying have probably been hindered by some defect in the dietary. Any present indication of over-fatness and unnecessary weight will inevitably delay production, and a reduction to a desirable condition is an immediate necessity. This may be effected partly by a judicious rearrangement of the rations, but more especially—and speedily—by extending the limits of the range, which, if of a suitable character, should encourage exercise. The feeding at this period is a matter that requires careful consideration, and must balance matters relative to the quantity and quality of the food that is available on the range. In some circumstances oats will serve, whilst in others there must be an addition of meat and vegetable food ; and where opposite conditions prevail it may be necessary to ring the changes on the whole gamut of suitable feeding-stuffs. A full range of foods, capable of desirable variation in mixture, would include barley-meal, biscuit-meal, ground oats, sharps, greaves ; oats, wheat, barley ; swedes, &c.—the selection being subject to the condition of the birds and the weather. The previous provision of inviting nesting-places and suitable material should largely prevent the annoyance of stolen nests. The eggs may be incubated by the turkey hen, the domestic hen, or the machine ; and for the principal production the use of the second available agent is preferable, so managing the natural mother that she may sit upon her final batch of eggs. If the incubator is used it should be filled at the same time that eggs are placed under hens, so that the machine-hatched chicks may be added to the broods that are naturally hatched, and all brought up by the hens. To attempt the artificial rearing of turkeys would be to court disaster, these birds requiring the care of a live mother ; and there is no better incubator and brooder than the turkey hen herself.

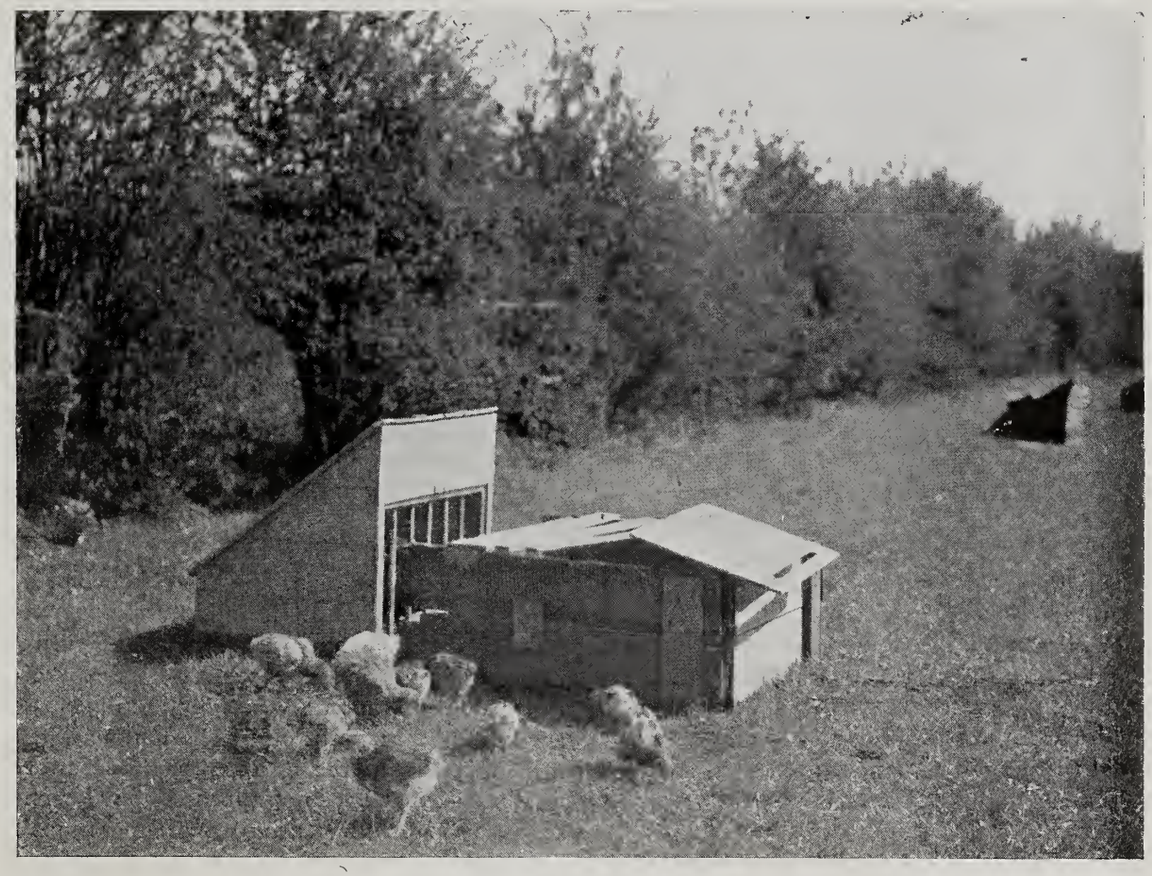
Care of Turkey Chicks.

Undoubtedly the best treatment is a natural one, or as nearly so as is possible under conditions of domestication, and these vary in different countries. Methods that are possible in the back-lying farms of a new country, where cultivation has not entirely altered the face of Nature, are obviously impossible in such an old country as this. Nevertheless, although we cannot turn out the turkey hens and their broods to fend for themselves in the low bush and amid the favourable surroundings of some American farms, there is often the opportunity for a free and comparatively natural treatment ; and where that is possible, the turkey hen may be depended upon largely to manage her own brood, and by gradually extended wanderings she will accustom her poults to habits of active foraging, and mother them for

a much longer period than the domestic hen is prepared to do. The many circumstances of farm poultry-keeping make it necessary, however, to consider the matter from the average producer's point of view, which is bounded by a routine method that involves cooping and relieves the mother of most of the responsibility of feeding, her duties being more or less limited to brooding. Sufficient accommodation for a turkey hen and a full brood can scarcely be secured by the use of a coop or hutch measuring less than 4ft. by 4ft., the height at the back being the same, and rising another foot in front. Although this may seem to be excessive, it is necessary to remember that these birds must have space and fresh air in plenty, and that the methods of the past have been mainly responsible for the present difficulties so often encountered in breeding and rearing these birds If a domestic hen is rostering the poults, a larger coop than she would occupy with her own chicks must be employed, and this must soon be replaced by the larger hutch if health and vigour are to be maintained. In no case should closed coops or hutches be used, but the whole or a portion of the front must be wire-netted, and protected with sacking when absolutely essential. Turkey chicks must be reared away from other fowls, and the coops or hutches set about 20 yards apart.

Treatment of Goslings.

The rate of progress during the growing period is materially dominated by space, both in the sleeping quarters and on the grass ; and if the accommodation s sufficient for the requirements, the growth of goslings is very rapid, as it must be for profitable market production. With plenty of clean and well-ventilated house room these birds will maintain health and a wonderfully good appetite, and with access to a sufficiency of grass they soon outgrow anything in the shape of a coop or hutch, and are quickly able to do without the attentions of a mother. Their rearing period (for the ordinary market purpose) is as short as that of turkeys is long, and, in contradistinction to the latter, the sooner they are free of the care of the fostering hen the better.



A POPULAR FORM OF COOP AND DETACHABLE RUN. [*Copyright.*

Coops.

The humble chicken-coop has become more or less obscured by the attention paid to brooders and foster-mothers, yet the appliance makers have not entirely ignored the more primitive form of shelter for the young, and have, in fact, effected several constructive improvements during recent years. These appliances may, however, be made at home with such comparative ease that they can scarcely be very important from the

point of view of the manufacturer, but unless they are properly constructed they may prove very expensive to the amateur carpenter—and every poultry-keeper thinks he can make a chicken-coop, although he may have proved the economy of the purchased fowl-house. The chief objects of a coop are, of course, the restraint of the hen and the sheltering by day and safe keeping by night of her brood; but the necessary strength, durability, and security may be achieved concurrently with an adequate ventilation and absence of draught. That results do not always come up to this description is due to a misapprehension of the requirements and the supposition that any box-like structure will serve, with the consequent serious risk of disease and loss in rearing. Considering the preponderance of rearers for market who always use coops in preference to brooders and foster-mothers, it is a matter for surprise that so little attention is paid to such important details of construction, involving as they do the health and the stamina of the birds they are made to accommodate. Provision for ventilation should be at the front only, and in place of the usual round holes an open portion covered with small-mesh netting is preferable—it is a simple matter to cover this with loosely-woven canvas in severe weather. A properly-fitting movable floor is a great advantage, its use or disuse depending upon the season and other circumstances.

MILK CHICKENS OR PETITS POUSSINS.

[The following notes on the Milk Chicken Trade are taken from "Poultry Fattening," by Edward Brown, F.L.S., which we are publishing in the course of the next few days.—EDITOR I.P.R.]

IN France and Belgium there has been for many years a considerable trade done in small chickens, which are found to be in considerable demand at certain seasons of the year, and sell readily at excellent prices. It may be explained that these birds do not carry a great amount of flesh, though more than would at first be expected, but they are served whole, one to each person, and there can be no doubt tha the form a very dainty dish. In th country the demand for them has been increasing, more especially in the West-End of London and two or three leading centres of population in the country. Of late the trade has assumed much greater proportions, and we know one breeder who in a season marketed about 2,000 birds which realised an average of from 1s. 6d. to 2s. each. And a well-known poultry breeder recently sold a lot of January-hatched chickens, when about five weeks old, at 2s. 6d. each. These are special prices, as considerable quantities now come from Germany at much cheaper rates. Whilst, therefore, this trade cannot be expected to assume large proportions, still it is desirable that particulars shall be given as to the preparation of the birds, because the names given to these birds vary. In Britain they are called "milk chickens," and in Belgium also (*poulets de lait*), but in France the term employed is *petits poussins*, whilst in America they are termed "squab-broilers."

The following extract is from an article by the author in the *Journal of the Board of Agriculture*, May, 1909:

"These smaller Hamburg and Belgian birds weigh 6oz. to 8oz., whereas the larger Belgian, English, and French run from 8oz. to 12oz. Across the Atlantic, what are called squab-broilers are still larger, weighing 12oz. to 16oz. each. These differences in weight are to some extent due to the class of fowl used, but also to the way in which the birds are fed. When the entire lot of chicks hatched are fattened as milk chickens, they may be killed earlier than where cockerels alone are selected, for in the latter case time must be given for the sex-characters to appear, more especially the comb.

"The demand for these small birds is not very large though it is greater than the supply, and is chiefly restricted to the wealthy classes. The limit of consumption has, however, not been reached, though it cannot be expected that the trade will ever attain large dimensions, for, regarded merely as an article of food, these milk chickens are very costly. The same, however, may be said of Bordeaux pigeons, larks, &c., which maintain their position on all markets. Of late the price of milk chickens has fallen somewhat owing to the cheaper supplies from Hamburg. At one time wholesale rates were from 1s. 6d. to 2s. 6d. each, but 1s. 2d. to 1s. 10d. is now the range, with a few exceptional specimens selling for 2s. Paris prices are higher than in London, probably owing to the fact that Hamburg *petits poussins* cost more to send there, and are not quite the size of French birds. Still, at the figures named, the margin of profit is considerable.

"The production of milk chickens is not an industry to be undertaken by itself, because, being a season trade, it would occupy less than half the year, and also because the cost of production is much less where this branch is only part of the operations. Attempts have been made by means of large plants to turn out *poulets de lait* on a wholesale scale. One of these has been described by Madame Van Schelle in her paper read at the second National Poultry Conference, held at Reading in 1907, but the establishment described was not continued, as it does not appear to have been a financial success. Difficulties arise when operations are intensive, and the heavy establishment expenses involved mean a great increase in the cost. Hence, so far as experience is available, there is no encouragement for taking up the work on a large scale. My observations in France, Belgium, Germany, and America have shown that the breediug and rearing of milk chickens can be made profitable if it forms part only of the work of the holding, but that if it is carried on by itself the results are likely to be very doubtful. At Haeltert, the place described by Madame Van Schelle, the chicks were reared artificially on shelf brooders, heated by pipes, a system which has yet to prove its practicability. Birds, however, were grown in two months to a weight of 2¼lb.

"SUITABLE BREEDS.—A very important point in the production of milk chickens is that of the breed of fowl

used for this purpose, because to a large degree upon that depends the rapidity of growth and the time when the birds come into fleshy condition. For this reason the races, which are at a later period of life the finest in meat qualities, are not the best for milk chickens, in that they are slower in growth than the light-bodied, non-sitting, egg-laying breeds. This is especially the case with the heavy general purpose fowls. It is, however, almost entirely a question of size of body required in these birds. In France, as we have already noted, the weights are from 8oz. to 12oz., for which Houdans and Faverolles are largely used. The lighter races are not much seen in that country. At one time the small Campine and Braekel were extensively used in Belgium as milk chickens, reaching the killing point at five to six weeks, but to a large extent they were the cockerels killed off as soon as distinguishable. More recently the heavier Malines fowls have been bred specially for that purpose, and as they are somewhat slower in growth and attain a larger size, the Belgian *poulets de lait* are pretty much on all fours with the French, or even larger. The German chickens appear to be of a light-bodied type—that is, of the small races of fowls which are general throughout Western Germany and the Netherlands, though I am informed that Orpingtons and Wyandottes have been introduced into Hanover for this class of poultry-production.

"In America what are known as squab-broilers are largely the product of large egg farms where White Leghorns, or other breeds of a similar type, are kept. Generally speaking, the birds which are best as egg-layers are poor in flesh qualities, except at one period—that is, when five to eight weeks old, just when the combs of the cockerels have sprung. As, however, Leghorns have yellow flesh and legs, they would not be so acceptable upon European as they they are on American markets. On these huge egg farms, of which that at Lakewood, New Jersey, may be cited as an example, thousands of laying hens are kept, and as the birds are retained for not more than two seasons, the number of chicks hatched annually to maintain the stock is very large. At Lakewood 7,000 hens form the total flock, and, therefore, 3,500 pullets are produced each year to replace the two-year-old hens thrown out. Hence 8,000 to 9,000 chickens must be hatched for that purpose alone, of which half will probably be cockerels. The profitable sale of these is all-important, and as the price realised for squab-broilers has been from 3s. to 6s. per couple, instead of cockerels costing more than their sale value, they have left a handsome profit. Equal results could not be obtained with operations on a small scale, for which reason it is evident that those who can make the most money from the rearing of milk chickens are, apart from general farmers, such as can use what may fairly be termed surplus stock for this purpose.

"REARING.—For the first few weeks the chickens are fed and reared in the usual way, either by natural or artificial means. With the lighter breeds, such as Leghorns, Minorcas, Campines, &c., the sex may be distinguished at from four to five weeks old, when the cockerels should at once be separated from the pullets and fed specially for a fortnight prior to killing. During this period they should be in a small, well-lighted house, and are better if not allowed out in the open, except for a short time every day.

"FEEDING.—The food should consist of oatmeal or ground oats, alternated with cooked rice, both of which should be prepared with soured skim milk, and a little pure fat—say, half a pound per 100 birds per diem—should be mixed with it. In addition, a very little small grain, wheat for preference, may be scattered among cut chaff on the floor once a day to induce exercise. Grit and greenstuff should be supplied in abundance. It need hardly be said that neither artificial heat nor the natural care of the hen is required during this final period, as the springing of the comb is a sign that the maternal care is no longer needed. This feeding brings the birds into plump, fleshy condition. If feeding is prolonged the first moult takes place, during which the flesh will be reduced, and the lighter breeds will not come into as good condition again. With the heavier races the sex cannot be distinguished so early, and that is why they are killed later, when they are larger in body.

"In America squab-broilers are fed during the last ten to fourteen days on a mixture of one part Indian meal and two parts bran, seasoned with a little salt and pepper, made into a wet mash, to which is added about 10 per cent. of cotton seed meal and some cheap treacle or syrup. In this way a deep yellow skin is secured, but, as already stated, that is not desirable on our markets. It would appear that milk is not used."

PREPARATION.—The chickens should be starved for a few hours before killing, being carefully plucked by the producer, and sent to market packed in boxes, but they must not be drawn. It is necessary that they shall be fleshy, with plump breasts, or they will look scraggy, and fail to realise anything like the prices of better specimens. In the months named above the average retail value is from 1s. 6d. to 2s. 6d each. We have, however, heard of instances when very much higher figures were paid for an even lot of chickens. When received by the retailer they are drawn and trussed, the wings being sewn, and a needle stuck right through the body—in fact, trussed more like a pheasant than a chicken. It is usual to place a vine-leaf inside the body, the acid of which improves the flavour.

POULTRY FOR THE COTTAGER.

By "EAST SUSSEX."

IT is a well-known fact that poultry-keeping on a small scale usually shows better profits than a larger production, the chief reasons being that the labour of looking after a few birds amounts practically to nothing, and little in the way of food has to be purchased. In poultry-keeping, therefore, the cottager is often at an advantage as compared with his well-to-do neighbours, and if he took the trouble to keep accounts, as he very

seldom does, it is probable that the return shown on the very small amount of capital invested would be considerable. A very important point in favour of the poultry-keeping cottager is the circumstance that, generally speaking, there is a piece of waste land close to his cottage where his fowls may spend a good deal of their time and pick up a by no means inconsiderable portion of their living. One must admit that since the motor-car came into being the difficulties of roadside poultry-keeping have been added to, and there is no doubt that the losses caused to cottagers by their chickens being run over by passing cars (the occupants of which would never dream of stopping to make good so trivial a circumstance !) is quite considerable. The privilege, however, of having the use of a strip of grass by the roadside, or a common over which one's poultry may roam at will, is a very real one, and the wise cottager takes full advantage of it. One believes that the road authorities—to whom unappropriated portions of land by the wayside now belong—never raise any objections to the coops of the cottager being placed thereon. In some parts of the country, perhaps, such methods of poultry-keeping might be considered rather unsafe, but in Sussex and Kent, where the custom is a very common one, one seldom hears of thefts being committed. The mere fact of the birds being placed in so conspicuous a position is doubtless an excellent safeguard against the possibility of stealing.

Cottagers' poultry-keeping varies, of course, according to the kind of market that it is intended to supply. In some districts eggs are in better demand than chickens, while in others the reverse may be the case. In all country districts within reach of a good-sized town the cottager can generally manage to find a ready sale both for eggs and chickens. His local trade is also considerable, and many a cottager depends upon it entirely to get rid of all that he produces. Chicken-rearing takes up a good deal of time, but where there are wives or daughters always at home it becomes an easy and often a profitable business. Directly the birds are hatched they go out into coops by the roadside, and stay there, often enough roosting in any ramshackle contrivance until big enough to market, or nearly so. The cottager usually sells his chickens to the higgler or dealer, but sometimes finishes them off himself by shutting them up to fatten at the end. In Kent and Sussex several cottagers of humble means make a practice of cramming the fowls they rear with one of the older patterns of machine, which can often be picked up at a sale for a few shillings. One believes that the practice of cramming by hand with moistened pellets of meal is now seldom followed, but at one time it was very popular. If

A CHICKEN-RAISER'S COTTAGE IN ASHDOWN FOREST.

Photo by J. W. Hurst.] [*Copyright.*

the work is carefully done, the birds fatten well enough under the system, and the only objection to the process is that it is painfully slow. Crammed chickens naturally fetch better prices than those fattened without this artificial aid, but if the cottager can get 2s. 6d. or 3s. from his private customers for a running bird when it is fit for table, he is very well satisfied, and gains a small profit for his trouble.

ROUGH-AND-READY PENS. [*Copyright.*

Under ordinary circumstances the cottager does not go in for what are known as "laying varieties" of poultry, for the general purpose bird that will lay a fair quantity of eggs, and rear a brood or two as well each season, suits him better. He seldom has space to keep more than a single pen of laying birds, and since these spend a large portion of their time in roaming about, it would not be very easy to keep them pure. Anything of the heavy type will answer his purpose so long as it is a fair layer and a good sitter, and in game-rearing districts it is often to the cottager's advantage to have a few more broody hens than he requires for his own use. Gamekeepers are always ready to buy hens for hatching pheasants' eggs in April and May, and the cottager can then dispose of his older birds at 2s. 6d. or 3s. apiece after they have finished their first laying. Sometimes the keeper simply hires the birds, paying 1s. or 1s. 6d. for the use of them during the season, and this arrangement suits both parties well enough if the birds are young and worth having back again. Even in country places fresh eggs fetch higher prices in autumn and winter, and in some districts never go below 1s. a dozen. In the chicken-rearing districts of Sussex the price varies from this figure to as much as 3s. a dozen in November and December, when eggs are scarce and those that can be had are chiefly wanted for hatching out early chickens. In Hampshire, on the contrary, eggs in April and May are sometimes worth no more than 1s. per score, and at this price it pays the cottager, or anyone else, better to put them down in pickle for winter use rather than sell them. For this purpose the proprietor of the village shop will often give a better price than the cottager can obtain in the open market when eggs are plentiful.

Except in a few special districts the cottager does not concern himself much with the keeping or rearing of other poultry than fowls proper. Ducks are no particular favourites of his, because, if allowed to wander, they will spend their whole time in somebody else's pond. There is also the objection, which one has often heard raised, that "they eat too much." It is true that although they mature much more quickly than chickens, one has to lay out a larger amount of money at a time in buying food for them. From the cottager's point of view, this is a serious objection. Nor is there much profit in rearing ducks for table unless one can get them early, and the cottager seldom has any facilities for doing so. Geese, however, are a different matter, and a great many are kept by cottagers whose dwellings adjoin a common or large waste by the wayside, where the birds to a great extent can keep themselves by grazing.

SOME FEEDING PROBLEMS.

IV. ANIMAL NUTRITION: THE FORMATION OF BODY TISSUES.

(Continued from page 309.)

IT has been stated that the nitrogenous constituents of the food are the only source of nitrogenous substances in the body; therefore it follows that the formation of flesh is dependent upon the supply of these constituents in the food. There is a continuous breaking down of tissue in the body, and this has to be made good by the food that is fed. The materials that are dissolved from the food, as a result of digestion, pass into the blood, and by this means are distributed throughout the body, where they are either consumed, resulting in the production of heat and energy or the formation of fat and flesh. The food supplies the materials for making

good this waste of tissue which is brought about by the living process. If the supply of food is excessive—that is, more than is required by the demand of the body—the material may be stored up in the body, in which case the animal will gain in weight; if the supply is only sufficient for the needs of the body the weight is maintained, but if the supply is curtailed or entirely withheld, the tissues of the body itself are broken down and the animal will lose in weight. That there is a minimum amount of nitrogenous or proteid matter necessary is an undoubted fact, and although this has been determined with dogs, cats, and other animals, we still require further experiments to elucidate similar facts with reference to poultry. From the experiments made with animals it appears that the excretion of nitrogen, this being dependent on the decomposition of the proteid in the body, decreases each day until after the fifth or sixth day of starvation, when the decomposition of the nitrogenous material remains constant. It has, moreover, been shown that adult animals can withstand the fasting process for a longer period than young stock, and that young animals die after a smaller loss of weight than the former.

In considering the whole question of animal nutrition, it is necessary for us to regard the subject in different ways, since the nutrition of the body is not dependent alone on the quantity of proteid matter fed, but also on the fat and carbohydrates present in the food. A very large number of tests have been made with animals in this direction, and though we do not propose to give these in detail, reference to them will assist us in making our final conclusions. It has already been suggested that a certain amount of protein is required by every animal, if the original weight is to be maintained and life kept in the body. If, however, an exclusive protein diet is given, it causes an increased decomposition of the proteid matter in the body, and the excess does not go to form flesh. It may, therefore, be taken from this that the quantity of protein in the food regulates the decomposition of the protein in the body. As an illustration of this, we may refer to the well-known "Banting" cure of obesity. The patient in this case is put on a diet of lean meat and fruit to the exclusion of butter, bread, and potatoes. The effect of the other nutrients on protein decomposition must also be noted. When fat is fed alone, it has no apparent effect in the direction of decreasing this decomposition in the body, and some experiments go to show that under certain conditions it may tend to increase this protein consumption. Again, when fed alone, carbohydrates have a similar effect to fat, in that they have no power to decrease the amount of protein decomposed.

The foregoing gives some groundwork for the following conclusions on the influence of a mixed diet—that is, one in which fat, carbohydrates, and protein are all fed. Experiments also go to show that the conclusions given below are correct.

The consumption of protein in the body depends on the supply of protein in the food, but it appears that the fat in a mixed diet has some protective power over the protein in the body from consumption. It has also been found that the carbohydrates possess a similar power—namely, to decrease the decomposition of protein. It must be remembered that this decomposition increased only when protein matter was fed alone, and that the feeding of both fat and carbohydrates alone had no power to decrease it. One experiment by Voit may be given to illustrate this point. When 1,000grms. of lean meat were fed per day alone, the loss between supply and the consumption of flesh amounted to 140grms., but when 300grams. of fat were added to the diet the gain was 30grms. This goes to prove that the addition of fat—and the same may be said of carbohydrates—to a protein feed decreases the consumption of protein matter. From what we have learnt, it appears that in practice the best results are obtained when a ration is fed containing sufficient proteid matter for the needs of the body, with a large proportion of carbohydrates to protein, or, in other words, a wide nutritive ratio. It must not be forgotten that we are here speaking only of the effect of these three constituents on flesh-production. Although varying in other ways, experiments by a number of investigators show that the effect of fat and carbohydrates, as far as saving protein consumption is concerned, are equal. We shall have to prove later, however, that the relative fuel value of the two is different, and that it is only in regard to their power on the consumption of proteid matter that they may be looked upon as similar.

It is necessary for us here to mention a further point in connection with the nitrogenous compounds in the food. There are two groups of compounds in this class, one being insoluble, the other soluble. The latter—the amides—are nutrients proper, and when fed they enter the animal system and then go through the same process as other nutrients. Most young plants contain some of their nitrogen in amide form, and silage also contains a considerable quantity of this constituent. Tests go to prove that equally good results are obtained in feeding this form of nitrogen.

There remain two constituents the action of which on protein consumption must be considered. We refer to salt and water. Opinion is fairly evenly divided as to whether salt should be given to poultry, and, therefore, the following particulars may prove of interest to poultry-keepers. Experiments prove that the addition of a moderate amount of salt to the food increases the secretion of the digestive juices, and consequently increases the protein consumption. It has also a stimulating effect on the appetite, and assists the passage of the nitrogenous constituents from the digestive tract into the blood. This indicates that when animals are being fed to their utmost capacity, for example, milch cows and, perhaps, young growing birds, the addition of salt will prove advantageous. Another effect of salt is to increase the excretion of urine. If an animal, supplied with salt, is given very little water, then water which would otherwise pass off by means of the lungs is diverted to the kidneys; if the water given is not sufficient, then the necessary supply will be taken from the body tissues, thus reducing the weight of the animal. It may be that this will assist the poutry-keeper in bringing his birds on to lay in the autumn. In the wild state

it is noticed that birds are always fattest in the autumn—i.e., they have a quantity of surplus food stored up on the body to help them over the winter, and that, by the time for laying comes round, they are in good breeding condition. We think it would be well worth a test to ascertain whether the feeding of a little salt, withholding the supply of water meanwhile, until the weight was reduced, then resorting to good feeding, would not have the desired effect of bringing the pullets and hens on to lay in the winter. The quantity of salt given must be small, for a large amount has a serious effect. M. le Professeur Suffran, of the Veterinary School at Toulouse, reports that when a feed of 100grms. of potatoes and 14grms. of salt was fed to birds at 9 a.m., twelve out of fifteen were dead the same evening. A further test showed a similar result. In this case, 4grms. of salt per kilo. of the live weight, or in other words, when 0.4 of the live weight was given as salt, it acted as a poison (toxique). As with other problems a number of investigations require to be made to indicate how much salt can safely be used.

The effect of giving large quantities of water is to cause a waste of nutrients in the body through increased protein consumption.

(To be continued.)

A MODEL FATTENING PLANT.

ONE of the best arranged fattening establishments in this or any country is at Marden, in Kent. Conducted for a long time by Mr. S. Piper, member of a well-known Sussex family of fatters, it was taken over about ten years ago by Mr. Frank Wheeler, who has greatly extended and improved it in many ways, and recently has added to his ordinary work the breeding of Sussex fowls, for which the place is very suitable indeed. Behind the buildings used for the final stages is an extensive orchard of cherry and other trees, which forms an excellent rearing-ground, and there are meadows adjoining. Whilst the vast majority of birds put into the fattening-cages are purchased from farmers and cottagers in the surrounding districts, it is of great advantage to control the early supply of chickens, when the difficulty is to get enough. Hence Mr. Wheeler has added hatching and rearing to his other operations. The outside cages form a long double row between two good hedges, which afford them plenty of shelter in the cages as shown in the illustration given herewith. There are other groups or rows of cages elsewhere, for at times as many as 3,000 birds are on the place. One square block is employed in warm weather for the

OUTSIDE FATTENING-CAGES AT MARDEN. [By courtesy of the N.P.O.S.

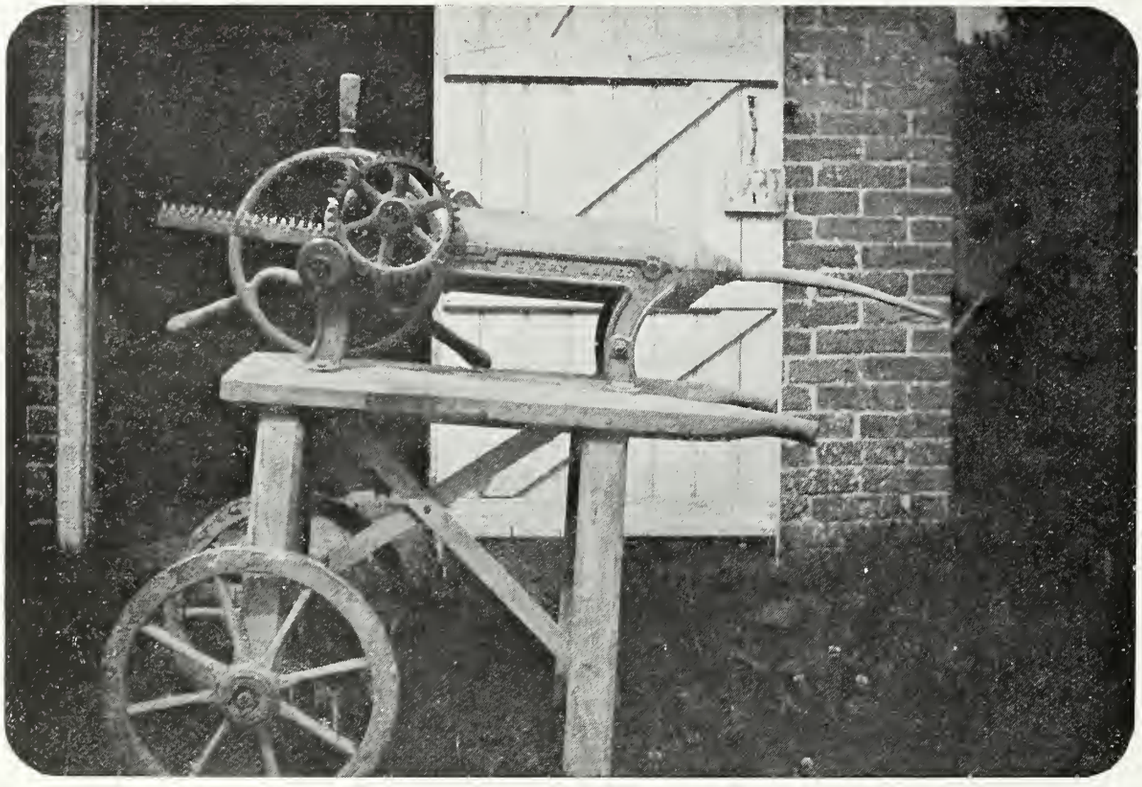
crammed specimens, but as a rule these are kept in roomy sheds. The quality of the stock and the methods of feeding are proved by Mr. Wheeler's success in the dead poultry classes at Smithfield and elsewhere.

INFERTILITY AND DEAD CHICKENS.

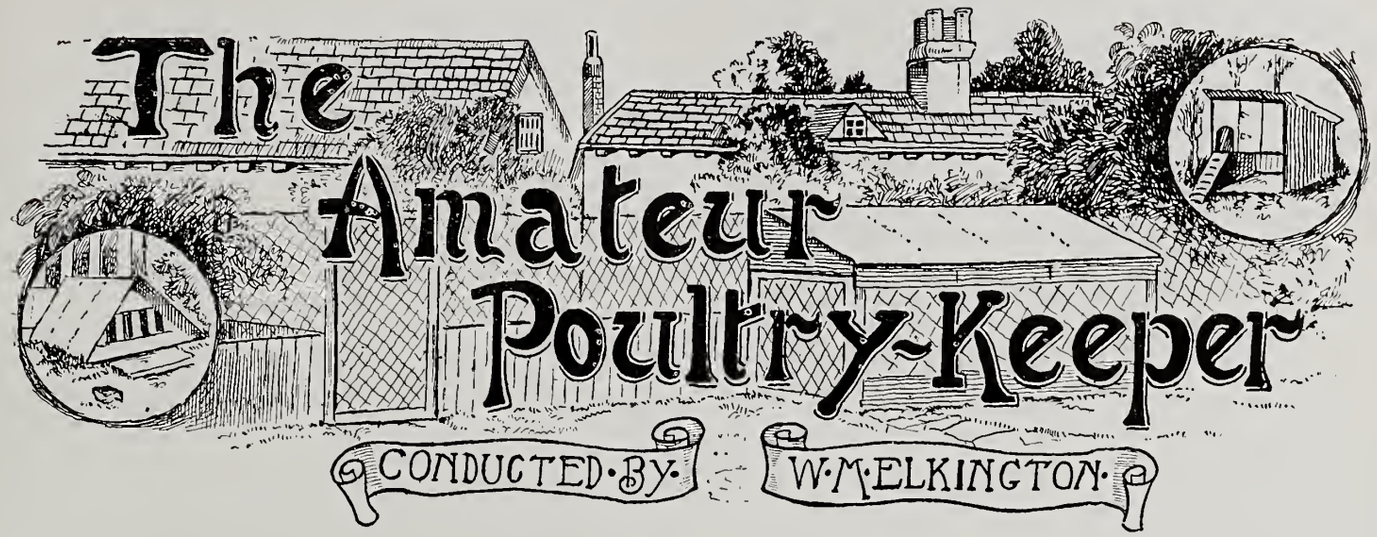
By F. W. PARTON.

THE usual crop of complaints is heavier than ever this year that a large percentage of eggs are infertile, and that hatching results are very poor so far as live chickens are concerned. There are many reasons which might be given as to the cause of this unsatisfactory state of affairs ; but there is one great factor that must not be overlooked, since it probably goes to the root of the whole thing. In these days of the abnormal layer, are we not weakening the bird's constitution, and thus paying the penalty of the forcing system which is so much in vogue? Trap-nesting to select the most prolific layer, and breeding from her, and the same system continued with her progeny, and her progeny's progeny, and so on through many generations of hens, may possibly go too far, and an increased yield of eggs be secured at the cost of stamina. Thus is a weakened constitution handed down to the offspring, which will neutralise the laying qualities that they should also have inherited. This question is one that deserves the careful consideration of all those interested in the scientific aspect of poultry-keeping ; we might say the physiological side. How far can forcing of the laying powers go without causing bodily weakness? How many eggs may a hen lay, and yet retain her stamina sufficiently to breed robust chickens, in which their parents' laying qualities will be perpetuated? Laying competitions have undoubtedly done an enormous amount of good and aroused a great deal of interest throughout the entire country, and have given an outlet for the competitive spirit that is inherent in most English poultry-keepers. But are the competitions conducted on the lines most likely to ensure perpetual benefit to the industry? It has been repeatedly proved that the most prolific layers do not produce equally prolific stock ; especially does this apply when pullets that have given a good account of themselves by taking a prominent position in a winter laying competition are bred from early in the year.

It is not, however, only among those birds that have been highly bred to increase egg-production that the troubles of infertility and dead-in-the-shell have to be contended with. It is often due to lack of forethought in the general management of fowls at a very critical period in their lives. As stated above, there are several causes. They may be briefly stated as follows : Breeding from immature stock birds ; over-feeding upon the wrong kinds of food ; insufficient warmth and shelter during the winter. When the first of these causes is given as the reason for failure in the hatching operations the poultry-keeper frequently exclaims indignantly that he certainly does breed from pullets, but he is careful to get a two-year-old cock. This may be perfectly true, and a most necessary proceeding ; but the male bird's age must not be relied upon entirely to balance the evils of breeding from very young pullets.



AN OLD TYPE CRAMMING MACHINE. [*Copyright.*



A Popular Paying Hobby.

Public attention has recently been attracted by the possibilities of poultry-keeping, both as an industry and as a hobby, and there can be no doubt that many who have never had anything to do with live stock will be tempted to keep a few fowls for the sake of their "golden eggs." This catch phrase may, however, appear somewhat misleading, and I am no party to the policy of telling people that they have merely to throw down a little corn to pick up a rich harvest of eggs. Many new readers will doubtless turn to this column for enlightenment in their preliminary difficulties, and as far as possible I want to give them a clear idea of what they have to do to make poultry pay. Let me make it clear at the outset that no hobby possesses greater possibilities than this, and that with all respect to gardening. I have been a keen amateur gardener for some years, and have derived a great amount of pleasure from it, but when it comes to profit there is nothing to equal poultry-keeping. However, there is no reason why the two should clash. You can keep a few fowls where nothing would grow, and if you go about it in the right way, as explained on page 13 of "The Amateur Poultry-Keeper," the two hobbies can be profitably combined. In one important respect there is a great similarity between them. Success in gardening may depend to some extent upon the soil and climatic conditions; but it depends mainly upon culture, because a good gardener can make up the soil as he requires it, and provide ideal conditions for growth. Perfection is only attained by careful attention to detail, and so it is in poultry-keeping. By merely giving the birds their food, as by merely sowing seed, one may raise a crop of a kind. But by coaxing and encouraging, by means of personal attention to detail, wonderful results may be attained, and I can give an assurance that good poultry-keeping, like good gardening, pays handsomely.

Stock.

There are other directions in which an analogy may be drawn between gardening and poultry-keeping. A great deal depends upon the stock you keep. A gardener may buy cheap and inferior seed, and fail to get satisfactory results with the most careful culture, and in the same way a poultry-keeper may devote his time and talents upon worthless stock. Now, do not be led away by the popular belief that you have only to keep pure-bred stock to obtain first-class results, for there are degenerate creatures among the pure-breds just as there are amongst the mongrels. Breed is of considerable importance, because some varieties are more suitable for special purposes than others; but strain is more important still. You may read about White Wyandottes having created wonderful records in laying competitions and in private tests; but it does not follow that all representatives of this breed possess the merit of prolificacy. It merely shows that breeders have cultivated certain strains of the breed until this high standard has been reached, and if you want to obtain similar results you must secure stock of these cultivated strains. The trouble is, however, that skilled breeders naturally ask higher prices for their superior stock than inferior birds can be bought for, and a great many beginners act upon the belief that one hen is just as good as another, and consider true economy consists of buying in the cheapest market. That is a mistake. A great deal depends upon what kind of a beginning one makes, and the difference in the cost between a pen of first-class utility birds and a pen of cheap inferior specimens will be more

than covered by the returns in the first season, not to speak of future results.

Accommodation.

On the whole fowls are adaptable creatures. There are few places where they cannot be kept if reasonable precautions are taken, but like the gardener who has to make up for ungenerous soil, the poultry-keeper must be prepared to meet them halfway by improving the available accommodation for their comfort and welfare. For instance, many people keep a few fowls on a few square yards of ground which, after the birds have been upon it for some little time, becomes a mere bare patch in dry weather and a mudbank in wet weather. What can be expected of fowls kept in such a place in winter, exposed to the weather and compelled to stand or potter about in the cold mud? Certainly these conditions are not conducive to egg-production. But put a roof over the run, or a good part of it, at any rate, and convert it into a scratching-shed, and you will experience a very different result. With plenty of litter upon the ground there will be no more cold feet; the birds can be induced to take healthy exercise at any time, and unless they are woefully neglected and overfed, they may be encouraged to lay just at the time when eggs are scarce and valuable. The expense will be a little more at the beginning, but the value of the returns will be practically doubled. I have had inquiries from amateurs about keeping fowls in most extraordinary places, and in nearly all cases success has been attained when proper precautions have been taken. One person kept his fowls in a loft, another on the roof of a building, and others shut up in stables and outbuildings. All these have done well by taking the necessary trouble, but the man who wanted to keep laying hens in a cellar has not yet realised his ambitions, because light and air are among the most necessary conditions for keeping poultry in health and productiveness.

The Cost.

Many people ask what it costs to feed a hen and how much she will produce during the year, but in both cases there are so many matters to be taken into consideration that it is difficult to make an accurate forecast. When all the food has to be bought, a careful manager should be able to keep a hen on 1½d. per week, but as amateurs are able to use house scraps to eke out the food supply the cost might be reduced to a penny per week. Indeed, I know several people who keep laying hens for even less, but that is not by buying cheap and inferior food, for one must consider what food will produce as well as what it costs. Then, again, a great deal depends upon the way the food is given. Some people have the knack of feeding poultry, and others fail to take the requirements of the birds into consideration, and put down the same quantity for each meal, generally too much, whether the birds want it or not. The great thing is to keep birds in good condition, to promote a constant supply of eggs, but to keep them active, and the only way to do that in a small run is to make them work for their food. There is one more item of cost—an important one. I refer to voluntary labour and personal attention. It does not necessarily follow that you need always be pottering about among your fowls. I know some people who are away from home all day, and can only attend to them in the morning and at night; but then they understand the habits of their birds and see that their wants are supplied. Therefore I advise every amateur to learn as much as he can about the habits of his fowls, so that he may be able to manage them to the best advantage.

AN AMATEUR'S TWELVE MONTHS' EXPERIENCE IN POULTRY-KEEPING

By EDITH BOULDEN.

THE possession of a garden just a little too large for me to keep in good order without assistance led me to consult a friend learned in such matters as to how I could best utilise this piece of ground, which seemed likely to become a veritable "last straw." He suggested keeping a few fowls thereon, and, concluding that what one woman many times before had done another could at least try to do, I made a start one November with seven pullets, first cross White Orpington-White Leghorn, chosen for me by the same friend, for which I paid 17s. 6d.

The space available was 25ft. × 21ft., sheltered from north and east winds by a 9in. concrete wall, and open to sunlight all day. I kept the fowls out of the garden by wire hurdles and a gate, training raspberry canes up to them until some young fruit-trees in the run should grow and provide shade.

I began by housing the pullets in a couple of pens placed within a few feet of one another, roofing over the intervening space with a few planks, so that in very bad weather the birds might be shut in entirely and yet have scratching accommodation. Both pens were supplied with dropping boards and perches, and so were easily kept clean, but I removed this furniture from one to give more air and space, and put it aside for a time.

Never having made personal acquaintance with a fowl previously to owning these, their arrival was quite an event, and I unpacked them very gingerly. It was a frosty, moonlight night, and five of them, after a quiet survey of the arrangements made for their comfort, accepted the situation philosophically. Not so the last two, who wandered distractedly everywhere but into the pen, and how to get them there I did not know. I put a lantern into the pen and went to seek counsel of a neighbour, and all he did was to laugh unfeelingly and suggest that I should follow the example of the wise ones and go to roost myself.

What with reiterated warnings against overfeeding ringing in my ears, and a dear old mother firmly convinced that the hens were starving, there followed a lively effort to find the happy medium, and learn the art of "feeding the beasts." I am still learning, but hope to "arrive" some day.

After a three weeks' meditation on the subject of duty the pullets began to lay, and gradually warmed to the work, their year's record being 971 eggs.

I set three hens during April and May with sittings of pure-bred Black Leghorn and a cross-bred lot, and so learnt something of the ways of sitting hens. What with workmen in the house at spring-cleaning time, and two sets of chicks residing at the end of a fairly long garden, one set needing to be fed every two hours and the other set every three hours, I had not many unoccupied minutes. Out of 29 eggs set 22 were hatched, but my inexperience and that of the pullets did not give all the chicks a fair chance, and only 13 throve and grew to maturity. Of these I killed two cockerels and retained one (a White Wyandotte), sold one more and three pullets, and retained three Black Leghorns, two Buff Orpingtons, and a dandy-grey-russet indescribable, who lays well, however.

In the early spring the pens were limewashed inside and tarred outside, not forgetting the hurdles, and thereby my existence was embittered for at least a fortnight, for I never went near the runs without getting at least one patch of tar on fingers or frock, and generally both. And as to the hens, they looked hopeless until they provided themselves with new coats. But the worst affliction of all was the loss of two promising White Wyandotte chicks, who fell into the tar pail which was filled with water after some heavy storms and was carelessly left in the run.

Just previously to this I had an 18ft. scratching-shed erected at the side of one pen. That left me a spare pen which at first sheltered the chicks, and later on another scratching-shed was added to it, so that by the time the family was full grown there was no crowding.

The hurdles were also turned so as to enclose a run of 30in. × 25in.

For the first five months the seven pullets cost 2d. each per week for food ; for the remainder of the year the whole thirteen were kept at 1d. each per week. I append balance-sheet. The labour item is the most serious, but all the work is good, and will last for years if regularly tarred, and the peace of mind induced is considerable. There has been no illness ; the ground has been frequently dug over, and the manure is invaluable for the garden.

BALANCE-SHEET.

Income.	£	s.	d.	Expenditure.	£	s.	d.
Sale of eggs (971)..	4	7	7½	Stock bought	1	2	6
Sale of stock (home use)	0	6	3	Food	3	8	10
Food in stock.....	0	4	8	Carriage, &c.....	0	1	5½
Value of present stock	1	2	0	Pens, utensils, &c.	9	7	7
Value of pens, £ s. d. &c.... 9 8 7					14	0	4½
Less 10 pr. ct. d'preciat'n 0 18 10	8	9	9	Balance (being profit)	0	9	11
	£14	10	3½		£14	10	3½

THE AMATEUR'S GUIDE FOR APRIL.

HATCHING operations are later than I have known for several seasons, and comparatively few amateurs were able to make a start early last month, so that there will be all the more to be hatched in April. This will not be too late for winter laying pullets if we are favoured with a real summer, and chickens of the heavier breeds, such as Orpingtons, Wyandottes, Rocks, &c., may be hatched up till about the end of this month with a reasonable chance of getting the pullets to lay by November. For the quicker growing, smaller breeds this is the best month of the year for hatching, and April pullets frequently commence laying in September and October. Therefore push on hatching operations as rapidly as possible. It is better not to have broody hens about in the warm weather of May and June, when insect pests are so abundant that it is difficult to keep the nests free from them. Besides, the later hatched birds do not thrive and grow at the same rate as those which make their appearance in the bracing month of April.

Those who use incubators of the hot-water tank type must remember that as the days become warmer and the air drier, it is necessary to keep more moisture in the water tray. At the beginning of this year, and up to the first week in March, the atmosphere was so humid that one could work an incubator dry right up to the last three or four days, and in most cases better results were obtained in this way. But one has to take the surroundings into consideration. In a cellar, for instance, little or no moisture need be added, whereas in a warm, dry room it is necessary almost from the very beginning. In working an incubator one must always study the conditions, and not adopt any hard-and-fast rules.

When the ground is dry, as it should be by this time, it is better to dispense with floors in the chicken coops. Unless plenty of litter is provided they are a frequent cause of cramp, and at this time of the year there is nothing better for chickens than the soft, springy turf. But the coops must be moved at least every other day, or the ground becomes fouled, and the grass may be so worn that it takes a long time to recover. By the way, no one need be afraid of rearing chickens on a lawn if the coops are moved every day. I find the grass grows better after it, and my lawn has been considerably improved since I have had a few coops on it in the early spring. A piece of wire-netting stretched on the bottom will effectually prevent the hen from scratching holes in the turf.

A word to breeders. Do not keep the same cock in the breeding-pen all through the season if you can help it. You may have noticed that when one cock is kept at work all the time, the rate of fertility begins to show a slight falling-off about this season, which is a sure sign that the male bird could do with a rest. It is not everyone who has the convenience to keep two cocks for each breeding-

pen, but it is certainly a wise precaution to have a male bird in reserve when fertility is desired.

Some thousands of day-old chickens are sold about this time, and many of my readers may prefer to buy some in preference to hatching their own. In that case one has only to turn to the business columns to find them advertised in all varieties and at all prices. They are sent off in boxes as soon as they are strong enough, and before they have had their first feed, and the buyer should have broody hens ready and waiting for them. The vendor will give notice when they are being dispatched, so that they may be met on arrival and introduced to the hens without delay. Any hen that has been sitting steadily for a few days will take to the chickens without any fuss, and after brooding them in the nest for a few hours, the hen and her charges may be moved to a coop.

To keep the earlier chickens growing it is desirable to move them on to fresh ground, and as soon as they are well feathered and the weather is moderately warm the mother hen should be taken away. Let them sleep in a well-ventilated house well bedded with peat moss or some other litter, but without perches, and get them out early in the morning, when there is usually plenty of insect life about at this time of the year. Fresh ground acts like a tonic to young stock, and rearing is never so satisfactory when one has to keep the youngsters continually on the same ground, or move them on into pens that have been occupied by other stock. That is why I advise amateurs who are short of accommodation to curtail their rearing operations, because in the case of ordinary market stock it is questionable whether it pays when the conditions are so unfavourable for growth. W. M. E.

Feather-production.

A writer in the *South African Poultry Journal* makes the following suggestion, which is worthy of consideration. Whether it would be profitable remains to be seen.

> The passing of the recent law in England regarding the prohibition of birds' skins for millinery purposes in consequence of the demand having caused so many of the brighter plumaged birds to become practically exterminated, induces me to draw your attention to the opportunity that will arise for the poultry fanciers to supply the requirements of the trade by breeding poultry for the value of their skins alone. Such breeds as the Golden and Silver Spangled Pencilled Hamburghs, Wyandottes, Sebright Bantams, Gold and Silver Pheasants, Rouen Ducks, Cayugas, and many other breeds of poultry, Bronze Turkeys, Guinea-Fowls, &c., which have distinct markings and gradations of colour, could be selected for these purposes. Consultation and practical advice from the feather manufacturers of Great Britain and the Continent, together with the Secretaries of the National Poultry Clubs of the World, would be of great assistance to the poultry-breeder in selecting poultry with plumage suitable for their trade requirements.

Egg Circles in South Australia.

With the object of assisting the poultry industry, the Government of this Colony have taken an important step in the direction of organising poultry-breeders of the State, and finding markets in Australia and England for all eggs of good quality. It is proposed to do this by establishing egg circles throughout the State, and Mr. A. E. Kinnear, Accountant of the Survey Department, who has for some years taken a keen interest in the poultry industry, has been appointed organiser of what is known as the egg circles branch of the Government Produce Department. Several circles have already been formed, and as the eggs are guaranteed by the official tester, they command the best prices. These are practically on the same basis as co-operative egg societies in the United Kingdom and Denmark, with one great advantage over the former—namely, that the societies are financed from central funds.

And in Victoria.

The system of what are called "Egg Circles," really a form of co-operation, established in South Australia, is awakening considerable interest elsewhere. The poultry expert of Victoria, Mr. H. V. Hawkins, has reported upon a mission of inquiry in which he recommends the establishment in his Colony of similar circles, and says that if this is done he has not the slightest doubt the production of eggs and poultry will so increase that, instead of the value being £1,750,000 as now, it will in five years reach £5,000,000 per annum.

Think of the Boys.

The *Natal Agricultural Journal* has introduced an excellent new feature which, if well conducted, should prove of great value—namely, "Farmer Boys' Pages." In this poultry-keeping will occupy a prominent place. In the progression of any pursuit the greatest hope must always centre in the young folks, who come to the work with few predilections or prejudices, and are more ready to test new ideas than their fathers. The poultry industry has been largely built up in this way in all countries. The educational value of such a feature should be very great indeed.

Lectures in Cape Colony.

With reference to a note in our October issue, we are pleased to receive a letter from Mr. Sellwood J. Hocking, of Rondebosch, Cape Colony, in which he says: "In December, 1907, I had the honour of being requisitioned to lecture on poultry-keeping at Worcester, which is situated 109 miles from Capetown, and again in November last I gave two lectures in the same town." The Cape Peninsula Poultry and Pigeons Society (of which Mr. Hocking is Chairman of Committee) holds regular meetings for the training of judges, and lectures are given at frequent intervals. More power to those engaged in this work.

A Turkey-Fowl Hybrid.

A writer in the *Indian Fowl Fanciers' Journal* says that a breeder at Simla produces birds from turkey cocks and ordinary hens of a large size, and that the chickens are "very big, and beautifully tender and tasteful," which we can well believe. More news as to these hybrids would be welcome.

Imports into South Africa.

It is evident that the poultry industry is advancing in South Africa, and that the Colonies are gradually providing for their own requirements in eggs and chickens. The records of imports show a decline in eggs of nearly 20 per cent., and of poultry more than 50 per cent. The balance should soon be struck.

Production in New Zealand.

A writer in the *New Zealand Poultry Journal* says that at the last census there were 2,784,270 fowls and 282,000 ducks in the Colony, and that the annual value of eggs and poultry produced is £2,000,000, which is nearly as great as the output of timber, more than 60 per cent. of the grain crop, and 80 per cent. of the butter and cheese manufactured. It is nearly three times as much as the coal trade of the Islands.

The Poultry Industry in South Africa.

The Fifth Annual Congress of the Agricultural Union has recently been held at Durban, Natal, and the following resolutions were adopted:

> That this Conference considers it desirable that greater attention should be paid to the poultry industry in South Africa, and hopes that every possible encouragement will be given by the various Governments in respect of the fostering of that industry.
>
> That, in view of the large importation of eggs into South Africa, it is desirable that an international egg-laying competition should be held; and that this Conference urges upon the respective South African Governments the necessity of adequately assisting such a competition by the giving of suitable grants thereto.
>
> This Union is of opinion that, in view of the prevalence of disease amongst poultry, and the serious loss thereby entailed, steps should be taken to investigate such diseases with the object of finding remedies or preventives.

These show that progress is being made in the South African Colonies.

THE GUELPH POULTRY SHOW.

By WALTER JAMES BROWN.

THE Poultry Show held in connection with the Ontario Provincial Winter Fair at Guelph, from December 6 to 10, 1909, was the best exhibition of its kind ever assembled in Canada, and in the opinion of several of the leading poultry men of this country it surpassed the great shows of New York and Boston. There were 4,763 entries, or a total of 5,700 birds in the exhibit. The quality throughout was exceptional. There was scarcely a poor bird in the whole show. The enlarged buildings offered increased accommodation for the poultry-keepers and their pets, but every foot of available space was occupied.

While the keenest competition was among the Leghorns, the Wyandottes, Barred Rocks, Buff Orpingtons, and Rhode Island Reds were strong classes.

There were 515 entries among the Wyandottes, and among the noted breeders who exhibited birds were John McPherson, London; Sheih and Becker, West Lorne; J. H. McGill, Port Hope; Joseph Russel, Toronto; W. Dawson, London East; William Archer, Paisley; A. G. Auld, Toronto; and J. A. Phaneuf, Montreal. The Leghorn entries numbered 409. The White Leghorns were of exceptional merit and the competition keen. Among the breeders represented were I. K. Martin, Galt; H. E. Thorne, London; James L. McCormick, Brantford; William Ferguson, Brantford; and F. Wales, Milton. There were 277 entries among the Plymouth Rocks. The birds in these classes had excellent shape and quality, and their feathering was superior to anything before exhibited in Canada. We may mention

among the breeders represented John Pringle, London; I. K. Mallard, Dundas; John Bedford, Toronto; Thos. Andrews, Pickering; Wm. Dale, Brampton; Hugh A. Rose, Welland; John Bawden, Ridgetown; J. W. Campbell, Cross Hill; J. D. McLean, Ridgetown; and F. W. Krouse, Guelph. Of the 240 Orpington entries the Buff Orpingtons formed the largest proportion. The quality of these birds was unusual, and gave evidence of the high standard attained by this breed in the country. The breeders exhibiting included J. W. Clarke, Cainsville; A. W. E. Hellyer, Ottawa; H. R. Hoffman, Ridgetown; Thompson Bros., Port Dover; and Hugh W. Scott, Caledonia. The Rhode Island Reds seem to be gaining in popularity, and the breed made a decidedly favourable impression at the Guelph Show.

A CANADIAN WYANDOTTE
Who laid her first egg at the age of four months and twelve days.

There were 86 entries of turkeys, 137 entries of geese, and 125 entries of ducks. The judges experienced some difficulty in placing the awards, as the quality was universally good, and the competition among these classes was keen. The most popular part of the show, however, from the standpoint of the visiting ladies and children, was that containing the Bantams and Pigeons. There were 786 entries in the former and 569 in the latter. The Game Bantams were represented by the largest class ever shown, consisting of 281 entries. This included a number of imported birds. The Oriental Bantams were also largely represented. The pigeons could not but appeal to the eye of the fancier. These birds were in their finest feather and made an exceedingly creditable display. In dressed poultry the Guelph Show made a distinct advance on anything held heretofore. The type, dressing, shaping, and quality of the fowl were more nearly ideal than is usual in Canadian exhibits of this character. The prize for the best dressed bird was captured by a representative of the Plymouth Rock breed. Among the chicken classes J. E. Mounce and Armstrong Mills secured nearly all the prizes; while in turkeys, ducks, and geese, H. J. Woodrow and Sons, of Beaconsfield, were the most successful exhibitors.

The marked advance in the exhibit of poultry at Guelph indicates a general awakening among the farmers of the Province of Ontario regarding the importance of the poultry industry. An official publication says: "Farmers are paying more attention to the raising of domestic fowl. Eggs have commanded high prices all season, and more attention is being given to the selection and care of good layers. Farmers at present are relying more upon the eggs than upon the meat for profit in poultry raising. Some reports are to the effect that chickens for market are likely to be scarcer than usual owing to the great demand for eggs."

There are in the Province of Ontario about 12,300,000 fowl of all kinds. This does not include more than 4,000,000 slaughtered during the year. The value of the dressed poultry averages nearly 2,000,000dols. a year, while the estimated value of the stock on hand is 4,500,000dols.

THE POULTRY INDUSTRY IN EASTERN BENGAL AND ASSAM.

THE Department of Agriculture of Eastern Bengal and Assam have issued a Bulletin (No. 22) embodying a report from Babu Ambika Charan Datta, on the Poultry Industry in the Noakhali and Chittagong districts, and a supplementary statement as to the measures approved by the Government for its improvement by Mr. A. A. Meggitt.

In Noakhali poultry-breeding is very general, and a considerable amount of trade is done in export of eggs and poultry to Burma. It consists of a low-lying alluvial plain, in which there is a good deal of salt, and has a humid climate. Three-fourths of the population are Mohammedans, and live chiefly by agriculture. The breeds kept are described as follows:

> There is no particular breed of fowls in the district though there are many that show traces of Chittagong blood and many more whose descent from jungle-fowl is obvious. Absence of feathers from the legs and heavy fluff from the body are characteristics of all fowls in the district. Those that show traces of Chittagong blood can be easily recognised by the comparatively high and upright carriage of their head and neck and their long legs. It is believed that crossing with jungle fowls gives stamina and vigour to the offspring, and the pullets turn out better mothers. The offspring have

generally shorter legs than their parents. The local people recognise the following varieties :

(1) *Kolong*—more or less pure-bred Chittagong, with high and upright bearing of head and neck.
(2) *Tambuli*—a short-legged variety.
(3) *Burui*—more or less domesticated jungle-fowl.
(4) *Karakuath* — distinguished by their black feathers. The blood of this variety is said to possess certain medicinal properties.
(5) *Habsi*—have feathers turned inwards.

Generally each hen hatches two broods of chicks annually. There are some which hatch three broods. A hen lays eggs continuously for the first 15 or 16 days. Ten to twelve eggs are set for hatching, which takes 21 days. The mother tends and watches over the chickens for about three months ; thus each brood requires about four to five months. The hens generally moult towards the end of September and in the month of October, when they do not lay eggs. Thus a hen, which is set to hatch, lays about 30 eggs in a year. If they are not set to hatch, hens again lay eggs after an interval of fifteen days to a month. Some hens have been known to lay as many as 80 eggs in a year, but generally all hens are set to hatch in the district. I have seen a hen which is reported to lay as many as 120 eggs in a year. It was a small and light bird, with a serrated and rather prominent comb, and in general appearance very much like the Hamburgh breed.

An average egg weighs about 1½oz., and brown eggs are considered to be richer than the white ones.

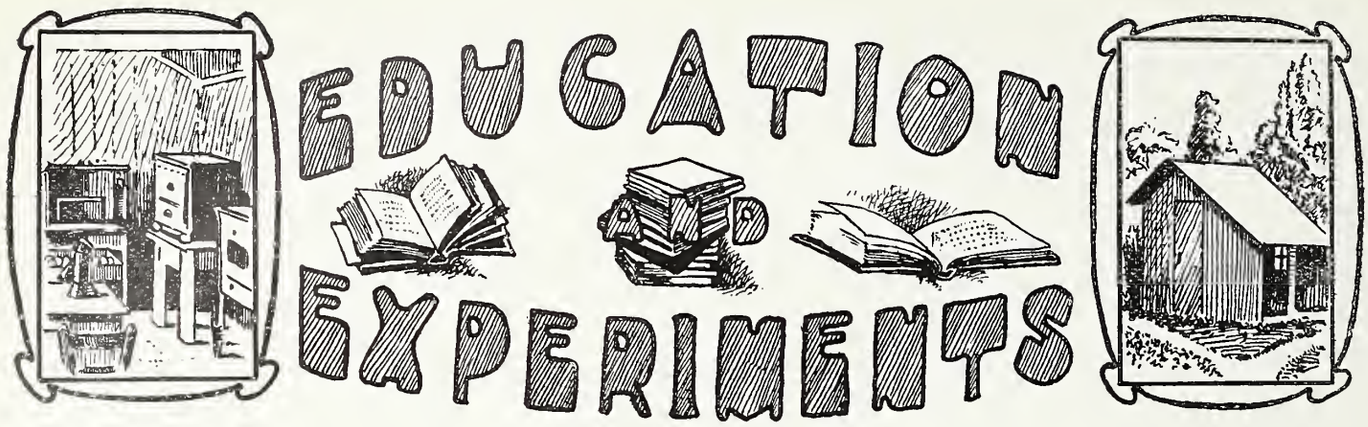
Ducks are very seldom set to hatch their own eggs. Their eggs are generally set to hatch under a clucking hen. These country ducks are all good layers. They are no doubt all descended from wild duck, a race that is found in almost every district. A duck lays no less than 160 to 180 eggs in a year at frequent intervals.

No trouble is taken about the management of either the fowls or ducks. The hens are grand foragers and are excellent mothers. The fowls are generally left to themselves to forage in the owner's fruit garden and in the cultivated land round his homestead. In the evening they are kept in bamboo cages, at the bottom of which a few sheaths of betelnut leaves are put. Over the sheath ashes are spread, and in the morning they are all cleared with the excreta and fresh ashes are put the next evening. It is rather a satisfactory feature that such cleanliness is observed, as it prevents the growth of vermin and parasites. When a hen begins to lay eggs, a broken piece of an earthen pot or *kalsi* with straw in it is set apart for the hen to lay in. Eggs are not removed from this pot till the hatching is over. For these reasons one or two eggs are occasionally broken. No special care is taken for feeding the setting hens. They come out of their own accord at intervals of two or three days for taking food and water. No special care is taken for breeding either. In-and-in breeding between brother and sister is not considered harmful, and cockerels five or six months old are sometimes allowed to run with the hens. This would have been very prejudicial to the poultry, had it not been for the fact that few people keep cocks, and that the cockerels are mostly caponised or sold off. One cock generally serves eight or ten hens belonging to different families, and thus unconsciously the right principle is followed. During the rainy season, when the country goes under water, hens do not get as much food as they do in the cold and dry weather, and hence they do not lay so many eggs as they do in the dry weather. The damp and moisture is also against hatching healthy broods, and a comparatively small number of chickens survive in the rainy season. But the rainy season is specially suitable for the ducks, and the export of ducks' eggs greatly increases in this season. The ducks find abundant food materials, such as shells, small fishes, &c., in the inundated fields.

A hen is generally sold or killed when 18 months old, after which age her fecundity is said to deteriorate. Similarly, a cock is believed to be useless after it is three years old.

At Chittagong, which is known as a district where poultry-keeping is largely carried on, and whence the Brahma was originally obtained, the manurial value of poultry is recognised. From this section also there is a considerable export trade. We give here the paragraph dealing with the breeds kept :

> There is a special breed of fowls known as the Chittagong breed to be found in thana Anwara. Some writers think that this breed is derived from the South Malayan breed, while others think that it was initially a cross between the Indian Game and the common country hen, and was originally bred with a view to get a new type of fighting cock. However that may be, their types are now fixed, and they can be easily recognised by their high and upright carriage, broad shoulders and slightly narrow loins, long straight yellow legs without any feathering, and wings carried high and projecting at the shoulders. There are only three villages in thana Anwara where the breeding is carried on on a large scale—viz., Bhaiyapara or Chapatali, Mahadevpur and Kumarpara in Bairag. The breeding has extended to village Guapanchak and Baruthan also. In the first three villages no country fowls are kept, and the breed may therefore be considered pure. Nearly all the families in the villages rear this breed. The hens lay from eight to ten eggs on each occasion, and hatch two broods of chickens annually. Allowing for casualties, a family rearing two hens successfully breeds about 10 to 15 fowls annually, and they generally sell a pair of these fowls for Rs.3. Thus each family derives about 15 to 20 rupees from these fowls. There are about 500 such families, but the demand is so great that they can hardly meet it. The breeding of these varieties is considered to be attended with more trouble, and to this is assigned the reason why the breeding has not extended to other villages. There is also a belief among the common people that these fowls will not thrive in other villages. I have been to these villages. They are bounded on one side by Dewang hill and on the other side by the sea. The soil is very dry, sandy and gravelly, and abounds in grits with a good proportion of lime, and with a natural drainage ; thus these villages would appear to be admirably adapted to the rearing of fowls. The fowls are bred in the neighbouring villages, but they are bred and kept together with ordinary country fowls, and what are generally passed for pure Chittagong fowls are really crosses between Chittagong and country fowls. The local name of the fowls is "Easen," no doubt a corruption of "Asul," which means pure Indian Game. There are two varieties of them, known as "Kolong" and "Ghagas." Kolong appears to be the real and pure Chittagong breed of the Malayan type. Ghagas variety appears to correspond to the description of the "Asul" or Indian Game, as having shorter legs, and being more round and compact. The Kolong variety generally fetches the better price. The pure-bred Chittagong possesses a white spot in the earlobe, and these "Rupkani" (silver-eared) fowls are priced higher than the others which have no such white spots. The "Asul," or pure Indian Game, is rather rare.



A New Appointment.

Major Walter E. Lloyd has been appointed Instructor in Poultry Husbandry under the Shropshire County Council, and we understand that he commences work early this autumn. Knowing Major Lloyd personally, we have every confidence that his labours will be crowned with success, and that the poultry industry in the districts under his care will be developed along the most up-to-date and practical lines.

Captain Peirson-Webber's Lectures.

The expert for the Northamptonshire and Warwickshire County Councils has been putting in a large amount of work within the last few weeks. He has just completed two tours, lecturing at East Haddon, Oundle, Duston, Pitsford, and Brixworth in Northamptonshire, and at Grandborough, Shilton, Hampton, Bubbenhall, and Wychford in Warwickshire. These lectures were well attended, and a great amount of interest was manifested by the local poultry-keepers. In addition, Captain Peirson-Webber addressed the annual meeting of the Northamptonshire Chamber of Agriculture on March 5, when he discussed the subject of poultry-keeping as a national asset and home resource for foodstuffs.

AMERICAN EXPERIMENTS.

MESSRS. R. HARCOURT and W. R. Graham, of the Ontario Agricultural College, report as follows on the question of the vitality of incubator-hatched chickens :

> The ratio—*i.e.*, between the carbon dioxide evolved and the amount of lime absorbed by the chick—is not constant, but the greater quantity of gas evolved the higher is the amount of lime absorbed. It would seem from this, then, that it is the chick with the greater natural vitality, the one with the freer and more healthy respiration while incubating, which will absorb the most lime, and will, consequently, come out of the shell with the stronger and better-built body, more likely to withstand the hardships connected with the early life.

Dr. P. C. Hadley, of the Experiment Station at Kingston, Rhode Island, dealing with his investigations on white diarrhœa in chicks, reports as follows :

> The microscopical pathological appearances in white diarrhœa as observed in 427 autopsies are summarised below.
>
> The epithelium lining the duodenum, small intestines, large intestine, and ceca was usually denuded to a greater or less extent. In and among the epithelial and mucus cells were many coccidia in the schizont or macrogamete stage. The thickening of the walls of ceca or intestines was apparently due both to the number of parasites and to the proliferation of small granular cells. The necrotic areas of the liver contained coccidia both in and out of the large liver cells. Where the coccidia were present in greatest numbers the normal liver tissue was largely broken down, and the parasites lay free in the connective tissue matrix. The nodules from the lungs revealed, upon section, areas of marked congestion and occasional necrosis. The capillaries were gorged with blood cells and small hæmorrhages were common; the pulmonary alveoli were surrounded by numerous proliferated granular cells. The epithelium of the smallest branches of the bronchi and infundibula was often broken down, and in both cubical and ciliated cells were found inclusions which possessed the appearance of coccidia. The parasitic bodies described above were, for the most part, the schizont stage of coccidium cuniculi, which is also the causative agent of "blackhead" of turkeys, and of at least some of the cases of so-called "roup." The schizont stage of this organism is probably identical with the Amœba meleagridis described by Smith (1895) (E.S.R., 7, p. 524) as the causative agent of "blackhead" in turkeys. In the present epidemic other stages of the coccidium were also found, especially the merozoites and the macrogametes. No cysts were found in chicks under one month old. . . .
>
> Experiments in transmitting the disease by feeding the schizogonous stage of the coccidium, while not completed, indicate that the disease may be perpetuated in a flock without infection by means of the permanent cyst stage of the coccidium. . . .
>
> In reality, white diarrhœa is not a disease, but a symptom. It is merely the result of a deranged metabolism, which may be caused by several factors working together or separately. One of these is coccidiosis; another may be the septicemia of Rettger, but it is probable that the disease of "white diarrhœa," as it is known to most poultrymen, is primarily a form of coccidiosis. . . .
>
> These results show that bacteria septicemiæ gallinarum has a high pathogenicity for young chicks, especially when associated with cases of coccidiosis or white diarrhœa, but that is not the only pathogenic organism accompanying coccidiosis.

ABERDEEN & NORTH OF SCOTLAND COLLEGE OF AGRICULTURE.

REPORT ON POULTRY-KEEPING EXPERIMENT.

THE report of the experiment carried out by the Aberdeen and North of Scotland College of Agriculture, made possible by the gift of £250 by Mr. James Murray, of Aberdeen, has just been published. The following particulars quoted from Mr. William Key's report should prove interesting :

The object of the experiment was to ascertain the extent to which poultry-keeping for egg-production could be profitably conducted by farmers, cottagers, crofters, and cottars. With this aim in view, eight flocks of White Wyandottes, each consisting of nine pullets and a cockerel, were purchased, and also two similar flocks of White Leghorns. These varieties were selected in consequence of their high reputation for laying qualities, and they were obtained from the most reliable known sources of bred-to-lay fowls.

Eight of these flocks or colonies were distributed on farms and kept on the colony system. The fowls were accommodated in movable houses and had unrestricted range. The remaining two flocks were kept under conditions applicable to the fowls of cottagers and suburban poultry-keepers. Their range was restricted, and situated chiefly among shrubs and trees.

The fowls were got in the end of October, 1908, with a view of commencing on November 1, but owing to their immaturity generally the commencement of the experiment was delayed till December 1. During the twelve months over which it extended note was kept of the daily number of eggs laid by each flock. The actual price received for eggs sold was also noted. In the hatching season those conducting the experiments had a demand for eggs for setting, and they sold them for this purpose at 3s. 6d. a dozen, as a rule.

I give a separate report for each colony. It should help to dispel the oft-repeated statement that hens will not lay in winter. The report shows the number of eggs for each month and the price actually obtained for them. This includes extra for such eggs as were sold for hatching purposes. The information it gives is interesting, but as the extra price received for eggs intended for hatching would vary from year to year, there is placed in a parallel column their money value had they all been sold at the ordinary market rate, whether in town or country.

It will be seen from the detailed reports which follow that there need be no difficulty in securing eggs in winter. Provided the right kind of fowls is kept and the proper time of hatching observed, the poultry-keeper can regulate an all-the-year-round egg supply.

So far as can be ascertained, the bulk of Scottish poultry average from 70 to 90 eggs per hen during the year. Promiscuous mating and inbreeding are chief factors in producing this low average.

As will be seen from the Abstract, p. 20, the average number of eggs per hen for the year is 150·8.

The eight colonies of Wyandottes averaged 156·6 eggs for the year, and the two flocks of White Leghorns 127·5 eggs.

It will be seen from a comparison of the colonies that the Wyandottes continued to lay right through the moulting period, whereas the Leghorns did not—see Colonies Nos. 7 and 8. It is not improbable that the Leghorns may give a better account of themselves in future, as they become acclimatised.

As will be seen from the Abstract, the average excess of price received for eggs over cost of food is 14s. ½d. per hen. Had all the eggs been sold at the rate of those sold in Aberdeen, the excess of the price over cost of food would have been 10s. 11½d. per hen per year. The difference here is accounted for by the higher prices actually received for eggs sold for hatching purposes. Had they been sold locally, however, the profit per hen would have been considerably less.

These very favourable results are due to the superior laying qualities of the fowls selected for the experiment.

I am satisfied that there will be but little extension of, or enthusiasm in, poultry-keeping in Scotland until every district has its right kind of fowls ; either such as give the largest return of good-sized eggs, or such as best serve for table purposes. It will avail but little to teach how poultry are to be fed and housed unless they inherit the qualities that give them value. These qualities can be effectively secured by establishing and supervising Breeding Centres such as are recommended in the report of the Departmental Committee on Poultry-Breeding in Scotland. An essential feature of all such centres is the use of the trap-nest in the case of laying breeds.

Abstract Showing Year's Results of the Ten Colonies.

Colony	No. of Eggs.	Price Received (1)	Price Locally (2)	Price in Aberdeen (3)	Cost of Food.	Excess of Prices over Cost of Food. (1)	(2)	(3)
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
No. 1	1,532	6 3 4	5 11 8	7 12 2	1 12 6	4 10 10	3 19 2	5 19 8
No. 2	1,580	12 3 7½	—	8 11 4	2 8 6	9 15 1½	—	6 2 10
No. 3	1,443	8 6 10	—	7 16 8	1 19 5	6 7 5	—	5 17 3
No. 4	1,514	9 15 11½	5 14 6	8 6 9½	2 13 10	7 2 1½	3 0 8	5 12 11½
No. 5	1,472	13 4 5	5 10 7	7 16 3	1 16 7	11 7 10	3 14 0	5 19 8
No. 6	1,355	9 2 7	—	7 2 11½	1 19 8½	7 2 10½	—	5 3 3
No. 7	1,236	6 17 8	—	6 4 5½	2 9 6	4 8 2	—	3 14 11½
No. 8	1,061	5 11 6½	3 16 2½	4 19 11	2 8 2	3 3 4½	1 8 0½	2 11 9
No. 9	1,237	5 18 4½	5 7 7	6 10 9	2 0 9	3 17 7½	3 6 10	4 10 0
No. 10	1,148	7 13 8½	—	5 19 10	2 5 0	5 8 8 2	—	3 14 10
Totals ..	13,578	84 18 0½	—	71 1 1½	21 13 11 2	63 4 1	—	49 7 2
Average per Colony	1,357·8	8 9 9½	—	7 2 1¼	2 3 4½	6 6 4¾	—	4 18 8½
Average per Hen ..	150·8	0 18 10	—	0 15 9¼	0 4 9¾	0 14 0½	—	0 10 11½

Remarks.—1. No deduction is made for housing, depreciation, management, mortality of fowls. These are variable, and an estimate of them cannot safely be given.

2. From "Price in Aberdeen" there would require to be deducted carriage to Aberdeen and cost of delivery to purchaser.

3. It will be seen that the columns above, on the right, showing profits are obtained by subtracting "Cost of Food" from Prices (1), (2), (3).

4. The column "Price Locally" cannot be completed, but sufficient is given to show the handicap of rural poultry-keepers in the matter of marketing.

THE POULTRY-KEEPER'S OTHER INTERESTS.

By "HOME COUNTIES."

*Author of "The Townsman's Farm," "Poultry Farming: Some Facts and Some Conclusions," "The Case for the Goat," "Country Cottages," &c."

"Poultry should be only one part of the stock."
—*The Secretary of the N.P.O.S. in the "Cyclopædia of Modern Agriculture."*

MATURING FRUIT-TREES.

What a pleasure it is at this time of the year for the poultry-keeper, as he watches his chickens coming on, to notice also the growth of his trees. If they have been properly cared for, they are, after eight or nine years or so, giving a grateful shade for the stock, and are full of promise of fruit. The difference between the trees which have been properly cared for and those which have been less well treated is now very marked. In the case of the well-cared-for there is bark as glossy almost as the surface of a plum; there is no mussel scale and, of course, no canker. If the pruning has been done properly the heads are nice and open, and the leading branches may now be allowed to go ahead without more cutting—only a little thinning out is needed. It is astonishing how trees, as they are maturing, prune themselves. Trees of about the age we are talking about are almost able to do without stakes—that is, if they have had stakes since they were planted. If they were allowed to do without this assistance, they are likely to be almost past putting into a really upright position. Now is the time, of course, when the poultry-keeper is tempted to let grass grow over the roots. Nothing could be a greater mistake. He must go on keeping round his trees a four or five foot circle. It means trouble in hoeing, but it is trouble which is paid for. The fact that old trees standing in grass bear decently has nothing to do with the case. The pomologist simply says that such trees would be doing a great deal better if they were not in grass. How seldom it is that we see a mature tree which has been permitted to do its very best! Indeed, few of us have ever seen what really well-grown trees are capable of. The poor things are badly treated from their youth up in far too many cases, and the wonder is that they do as well as they manage to do.

ALL-THE-YEAR-ROUND SPRAYING.

Spraying can become a confounded nuisance—I was almost going to say a habit. If one sprayed at all the times of the year and for all the different kinds of creatures whose fate it is to be sprayed out of existence by the scientific fruit-grower, one might never have one's goggles and rubber gloves off. But in the best manuals (for example, Theobald and Pickering's "Spraying Calendar") the thing has been simplified a great deal. A point to be grasped is that modern spraying is a summer job as well as a winter task. Needless to say, the fluids used are not the same. I need not burden these columns with details—poultry-keepers can get gratis leaflets on the subject from the Board of Agriculture. If any reader has not bought himself rubber gloves I may mention that they are not at all dear. They are the kind used by surgeons. But, of course, a really well-made pair of leather gloves will do at a pinch. Spraying fluid which contains carbolic acid and such things is not, however, a thing that one cares to have sopping on to one's hands. Goggles are most necessary. One goes ahead much quicker when the risk to the eyes is entirely eliminated. Have I said before how important it is that the nozzle of the spraying machine should be capable of giving a really fine spray? It is by no means the kind of spray one gets from a garden syringe, however fine the perforations. The spray must be practically a cloud. This means that the trees can only be treated on a still day. In order to be done with the subject of spraying for 1910, one should give a warning, perhaps, against using poisonous liquids after the fruit has formed. Spraying in poultry runs has the advantage that there is usually nothing near the trees which can be injured by the spray—that is, if the grass is not allowed, as it should not be allowed, to grow right up to the trunks of the trees.

TO MAKE AN UGLY HOUSE PRESENTABLE.

Not a few poultry-keepers have the ill-fortune to find themselves landed in an ugly-looking house. They have to choose their locality for the opportunities it offers of getting easily to market, and for the advantages it provides in the way of land suitable for stock. One has often been very sorry for intelligent people who have had, willy-nilly, to take up their quarters in houses the exteriors of which were sad monuments of misdirected ingenuity on the part of the bricklayer. When it is a matter of horrid-looking bricks or a horrid mixture of bricks, excellent results may sometimes be obtained by treating them with a wash. There are all sorts of washes. The house can be made white by the use of lime and milk, though very few people seem to know what white is when they start limewashing a house, but imagine it can only be got by the use of blue. The finest of all washes for bricks is made from using stone lime and copperas. The copperas has to be dissolved and boiled, and the stone lime, instead of ordinary builder's yard lime, is prescribed in order that it may also be made properly. The colour obtained is the beautiful warm yellow which is commonly seen on farmhouses in Sussex. This wash is excellent for sticking to the bricks, and need not be renewed for many years. The thing to avoid is a wash into which cement enters—that is, if the matter is to be looked at from an æsthetic point of view.

"Vacca Pauperis," Dead and Alive.

The other day, for the first time in my life, I saw a dead goat. In my experience, a dead goat is almost as great a rarity as a dead donkey. Of course, goats die as donkeys do, but they seem to take a lot of killing. The poor creature I saw had poisoned itself. Goats will eat almost anything, but there are a few things, like yew, laurel, and lords and ladies, which are too much for a goat, unless it is in exceptionally robust health and partakes very moderately. The man who had lost the goat I speak of proposed to tan the skin, and certainly a nicely-marked goat-skin is worth keeping. As to the hardiness of goats, one of mine kidded at the beginning of March, and the kid—I have had five at a birth, but there was only one this time—the kid within an hour of its birth was right out in the open, and the first night of its life it slept out in its yard. Of course, it is a well-sheltered yard, but still it is an open yard. Why should kids be more coddled than lambs? As a matter of fact, the only thing that can do either much harm is wet. A dry bed out of the wind and variety of food, and goats are bound to do well.

The Importation of Goats.

The proposed importation of goats from Egypt and from Switzerland continues to hang fire for first one reason and then another. That it will come off eventually there can be no doubt. Then those who have preached the value of *vacca pauperis* will be justified. The yields of some of the best foreign goats are such as to raise the eyebrows of people who have never looked into the question of goat milk yields in Switzerland or France. It is all the result of the encouragement by the authorities of breeding for milk. Some of the figures in the well-known French work on the goat are really too startling to quote. We are scarcely likely to have the best goats on the Continent brought over here, because the owners know their value too well to part with them; but I certainly look forward to seeing within a reasonable period the milk yields of the goats in this country materially raised by the judicious importations which the Board of Agriculture is about to permit.

Co-operation.

I was interested the other day to hear that one of the members of a well-known agricultural co-operative society was a poultry-farmer. Co-operation has something in addition to facilities for marketing eggs to offer poultry-keepers with a fairish amount of land. There are various requirements which it is possible to purchase to advantage through the co-operative society. The managers of one large co-operative society, the premises of which I visited not long ago, backed themselves to quote favourable terms for any article I liked to mention, from bicycles to mowing machines and tin-tacks to string and field-gates. The Eastern Counties Farmers' Co-operative Association, for example, is doing a wonderfully varied business with all sorts and conditions of people on the land. Its turnover is something like £300,000 a year—on a capital still in four figures. So many poultry-keepers have land which they use for other purposes than poultry that the advantages which co-operation offers them are well worth looking into. It is not necessary to wait for the formation of a co-operative organisation close at hand. Orders are accepted by the societies, however far away their customers are. Should any reader be interested in this matter, he might communicate with the Agricultural Organisation Society at Dacre Street, Westminster.

The Value of Bees.

Next month a swarm of bees is "worth a load of hay." Has it ever struck the reader how much more truth there is in that line of the old rhyme than is generally understood? If it were not for bees, clover and other constituents of hay would certainly not yield as they do. The advantages of bees to agriculture, and therefore to the poultry-keeper who has any land at all, were impressively set forth in an excellent paper read at the Farmers' Club the other week by the secretary of the British Bee-keepers' Association. The benefits conferred upon the farmer by bees were recited as long ago as in "The Origin of Species"; but think of the following experiment as carried out by a friend of Mr. Herrod's. He protected three vigorous heads of white clover in his garden just before the flowers were about to open. As a result not a single seed was formed! In unprotected heads the experimenter found more than a hundred seeds per head—so much is clover indebted to the attentions of insects. In different parts of the world clover flowered, but did not seed until bees were introduced. There have been cases in which hives of bees introduced into bean-fields have brought about a noteworthy addition to the crop. In regard to fruit-growing, there can be no question as to the gain from bees. I have read of a case in which a fruit-grower, after getting rid of his bees, was compelled to go in for them again owing to the falling-off in crops. It is probably the case that shortness of fruit crops is frequently due to imperfect fertilisation, not to the causes which are usually made responsible for the loss.

THE POULTRY CLUB YEAR-BOOK, 1910.

THE annual report—the thirty-second—of the Poultry Club, which is embodied in this "Year-Book," reveals satisfactory progress during the past twelve months, in spite of the number of new members elected being rather less than in previous years. Additional societies and clubs associated during the period mentioned number fifty-nine, as against seventy-one in 1908, thus showing the steady increase of authority that the Club is gaining over poultry shows. The "Year-Book" contains all the usual features, and we need only mention that Mr. G. Tyrwhitt-Drake's special article this year is entitled "Some Hints on Running a Poultry Show," and is as authoritative as one might expect, without being ponderous. Mr. Tyrwhitt-Drake will be pleased to send a copy of the "Year-Book" to any person applying for it, on receipt of 2d. for postage.

BIBLIOGRAPHY OF POULTRY.

Compiled by Edward Brown, F.L.S.

Compiler's Note.—With the object of securing as complete a list as possible of Poultry Books, it is proposed to give from time to time particulars as to such as are known. My own library embraces nearly 350 volumes on this subject, but there must be many not contained therein. I beg respectfully to request the kindly co-operation of owners of books not named, with a view to making the list exhaustive. In sending particulars I request that the following be stated: (1) Full title, and sub-title, if any; (2) Author's complete name, with any information respecting the writer; (3) Place of publication and name of publisher; (4) Date of publication, if given; (5) Number of edition; (6) Number of pages and size of book; (7) If illustrated; and (8) Whether in paper or cloth. Acknowledgment will be made of source of information. The books marked with an asterisk I have not been able to verify, and further details will be welcome both as to books and authors.

LIST No. 5 (Continued from page 267, February, 1910).

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Digby, Henry.

DUCKS FOR FARM AND COTTAGE. London: Society for Promoting Christian Knowledge, 15 pp., paper cover. *Pamphlet.* 1895. 32mo.

GEESE AND TURKEYS FOR FARM AND COTTAGE. London: S.P.C.K., 16 pp., paper cover. *Pamphlet.* 1895. 32mo.

HOW TO MAKE £50 A YEAR BY KEEPING DUCKS; ALSO BREEDING OF GEESE. Huddersfield: Author, 120 pp., illustrated. Undated. 8vo.

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THE WAVERLEY POULTRY BOOK. Leith, N.B.: J. A. Dobbie and Co., 99 pp., illustrated, paper cover. 1901. 8vo.

Donald, John.

THE INDIAN RUNNER DUCK: Its History and Description. Wigton, Cumberland: Author, 7 pp., coloured illustration, paper cover. *Pamphlet.* Undated. 16mo.

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CAPONS AND CAPONISING: A Book for Every Poultry-Raiser. Syracuse, N.Y., U.S.A.: C. C. De Puy, 44 pp., illustrated, paper cover. 1891. 16mo.

Doyle, Martyn (pseudonym of William Hickay).

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[The first part deals with breeds, the second with management. Evidently issued in numbers, as the Preface states that Mr. M. Doyle became Editor after the first two were published. The first Editor was J. Barnett.]

* ———— New Edition. 1857.
* ———— New Edition. 1870.
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Dürler-Rusconi, Ant.

PRATISCHE GEFLÜGELZUCHT: A Text Book on Utility Poultry-Keeping for the Farmer. Aaran, Germany: Emil Wirz, 115 pp. illustrated. 1897. 8vo.

Dryden, James (Professor of Poultry at Oregon College Experiment Station; formerly of the Utah Experiment Station).

THE POULTRY INDUSTRY IN OREGON: Corvallis, Oregon, U.S.A.: Agricultural College Press, Bulletin No. 96, 40 pp., illustrated, paper cover. 1907. 8vo.

Dürigen, Bruno.

DIE GEFLÜGELZUCHT NACH IHREM JETZIGEN RATIONELLEN STANDPUNKT. Berlin: Paul Parey, 880 pp., illustrated, paper cover. 1886. 8vo.

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HOW THE FRENCH MAKE FOWLS PAY. London: Bosworth, in four parts, 88 pp., illustrated. 1871. 8vo.

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POULTRY ANSWERS TO CORRESPONDENTS. Coaley, Glos.: Author, 73 pp., illustrated, paper cover. 1908. 12mo.

Elkington, W. M. (see Long, James).

Elford, F. C. (Professor of Poultry Husbandry, Macdonald College, Quebec, Canada; late Chief of Poultry Division Canadian Department of Agriculture).

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Entwisle, William M. (Breeder, Exhibitor, and Judge of Bantams for many years; produced several new races of Bantams; died 1892).

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Ewart, Wilfrid H. G. (See Hicks, J. Stephen.)

Felch, I. K.

* POULTRY CULTURE: How to Raise, Manage, Mate, and Judge Thoroughbred Fowls. Chicago, Ill., U.S.A.: Dounolme, Henneberry, and Co., 438 pp. (?) 1885. 12mo.

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(To be continued.)

THE COCKEREL PENS. [*Copyright.*

THE WOOLHAMPTON POULTRY FARM.

A WALK of a mile and a half from Midgham Station on the Great Western Railway brings one to the Woolhampton Poultry Farm. It is up-going most of the way, the rise out of the village being the stiffest climb; but the road, winding its way between the lined banks and past a variety of farms and private houses, is not tedious, and as one nears the plateau on which the farm is situated one breathes the invigorating air of the Bagshot hills. It is high ground up here, high and wind-swept, and the first glimpse of an important part of the plant—namely, the main range of breeding-pens—reveals them to be on as high ground as any. One sees them from the road—a solid square of poles and wire netting, with the curious air of a fortress, planted in a half-ploughed field, and guarding, as it were, the manager's temporary cottage and the pretty bit of orchard that lie beyond. The road takes a sharp sweep to the left, and one has walked round practically two sides of the farm before one reaches the actual entrance, which is by way of a grass path to the cottage door.

We spoke of the manager's cottage, but in point of fact there were, at the time of our visit, two buildings that laid claim to that title. The "official" residence stands to the left of the grass path referred to. For reasons, however, into which we need not enter, Miss Graham, who has managed the farm since last November, was occupying the picturesquely thatched dwelling that one sees straight ahead. Originally this comprised accommodation for two labourers and their families, which means that it is a fairly roomy dwelling of its class. Both cottages are placed very conveniently as regards the management of the farm, which, by a rough estimate, must cover about forty acres. The pathway from the road skirts about an acre of grass land, devoted to the rearing of chicks; the cottage used at present, and its garden, shut off this part from the extensive field in which the breeding-pens are situated; to the left and beyond the other cottage there is more meadow, which is used for free ranging; and, nearest to the road stands a group of barns and other outbuildings, of which we shall say something presently. It will thus be gathered that the cottages are centrally situated.

A RHODE ISLAND PULLET. [*Copyright.*

The breeding-pens, which were the first object

to be seen from afar, were naturally, from their geographical position and their importance, the first to be examined at close quarters. Our early impression of the fort-like nature of the enclosure was not greatly modified ; but we discovered that instead of one solid block of pens there were two, divided from each other by a substantial grass roadway. One of these blocks is a square comprising twenty square pens and the other a narrow parallelogram of seven pens ; and the stock within them consisted primarily of Rhode Island Reds, rose-combed and single-combed, and in the second place of Gold, Silver, and White Wyandottes. A word as to the Reds is necessary. When the farm changed hands last October, the Reds were taken over by the new proprietor, together with the other stock. They were, however, a mixed lot ; and it has been Miss Graham's task during the six months of her management to sift the good from the indifferent, to eliminate the worst and encourage the best specimens ; in a word, to put the existing strains on a firm footing, and, by importing eggs for setting from good American stock, to form the nucleus of fresh strains. Progress has necessarily been slow—it is not possible to do much in six months — but Miss Graham has already one "first and special" cockerel to her credit, and there are the makings of many successes in both cockerels and pullets. A significant sign is the exuberant health that is evidenced by these occupants of the pens, their blood-crimson combs and wattles and richness of body colour proving that the bracing position of the site and Miss Graham's management have combined to give them immense vitality.

The ground here, so to speak, is still in the raw. Grass is to be sown, but at present the runs are little more than bare earth—the sand-impregnated earth, however, that sucks up moisture very quickly. Preparations for utilising the ground around to the best advantage have been made. A wide strip, nearest the cottage, has been ploughed for wheat. It is intended to strengthen and increase the grass area. For the moment, however, all that can be done for the stock is to ensure adequate change of ground and adequate accommodation. The former is achieved by Miss Graham's arrangement of the pens and the latter by the construction of the houses and runs. The houses are not all of one type, though the majority are open-fronted structures fitted with sliding shutters—we noticed one apex form of house among them—and each is very solidly built, as, indeed, it has to be to withstand the west wind that blows here. A feature of their construction is the perches, which are carried beyond the limits of each house through the wall at each end, the projecting portions serving as handles

BREEDING-PENS. [*Copyright.*

whereby the house can be lifted by a couple of men and transferred to a different part of the run, or to another run. The houses at present are placed in the centres of the runs. For litter Miss Graham uses hay, and plenty of it. The walls are creosoted to render them weather-proof, and the substantial boarding that has been placed at the base of the wire-netting enclosure is treated with the same preservative.

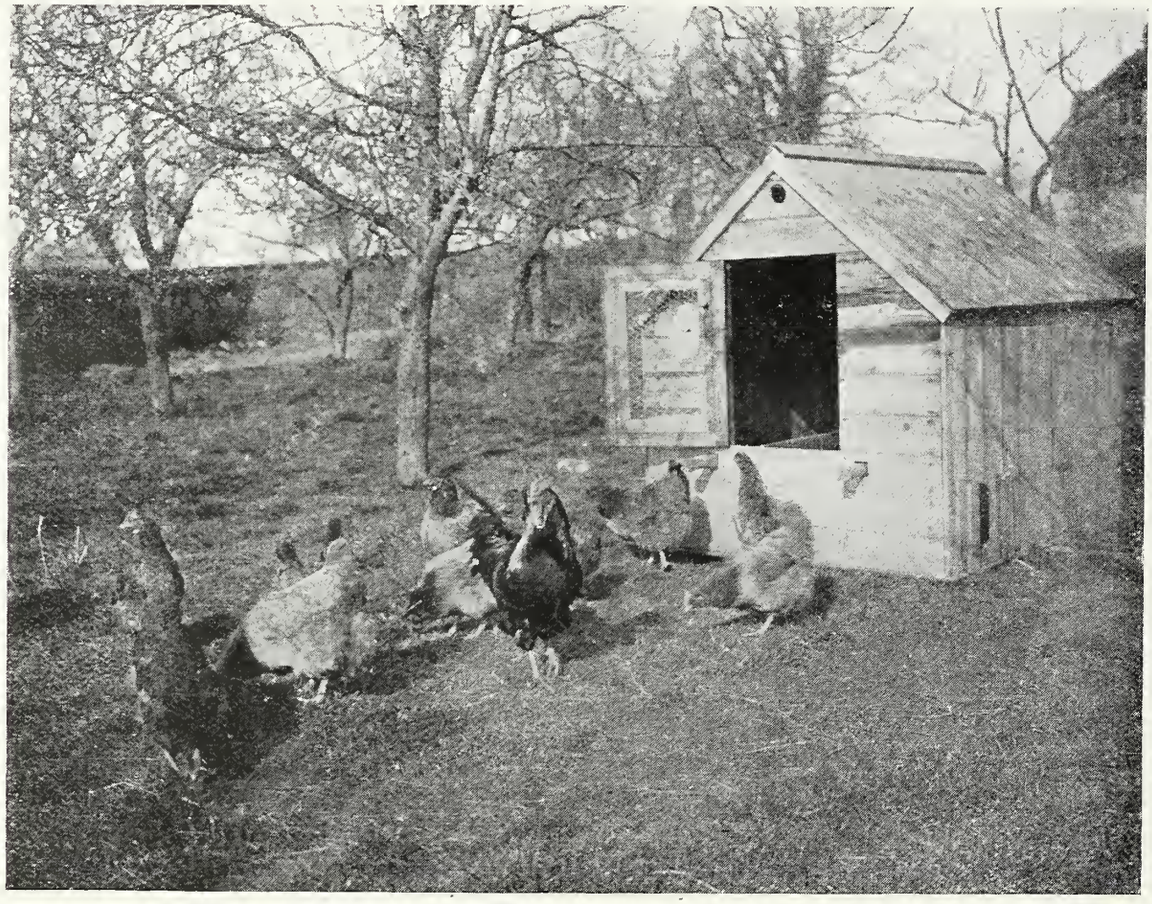
A not less interesting section of the farm is that devoted to chicken-rearing. First of all, however, one may glance at the incubators. Seven of these are housed temporarily in a room of the manager's cottage that is to be, and a very good room it is for the purpose. The machines, made by a very well-known firm, are all of fifty-egg capacity. Three brooders by the same firm are the first objects that strike one's eye as one comes out of the cottage and on to the acre of grass where the chicks are reared. We a so noticed here a fourth brooder of another make—a quite simple contrivance warmed by a hurricane lamp, so constructed that the removal of the lamp transforms the structure into a convenient and fairly commodious cockerel house. However, the chicks themselves, including a number that were ringed to show their American origin, were more interesting than any appliances. Whether the "Red" chick is distinguished for precocity we do not know, but certainly a more lively lot of youngsters than those which swarmed out of the brooders at the sound of Miss Graham's voice could hardly be imagined. There was not a weedy specimen among them, both the January-hatched birds and those a week old showing remarkable fearlessness and vitality; which reminds us that the dry-feed system for chicks finds no favour here, although the use of a certain well-known preparation of grains is not disdained. The general diet, however, is a mixed one, a warm mash alternating with the grain, green food, and grit. The business of the farm entails a good deal of "forcing," and the chicks—the "Red" chicks, at any rate—develop faster on a ration in which soft and dry foods are intermingled. While on this subject, one may mention that the grains supplied to adult birds are corn and wheat, while a mixture of barley-meal and toppings or pollard forms the usual morning mash. The room which serves for food-store and kitchen is excellently equipped with the utensils necessary for operations on a large scale, and every care is taken to secure first-class material and to treat it with due regard to cleanliness.

RHODE ISLAND REDS IN A PORTABLE BROODER-HOUSE. [*Copyright.*

A small range of fattening-coops had been fitted up in one of the outbuildings, and a cramming machine was ready to hand. Cramming, however, is only resroted to as a final measure

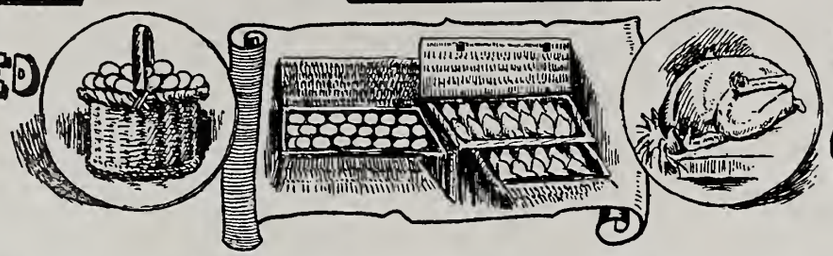
when a bird's appetite has failed altogether ; we gathered that it was not often used. The birds are fattened on Sussex ground oats, and when ready are killed, plucked, trussed, and dispatched to private customers. It is, of course, mostly the mongrels that are reserved for this fate. These are housed in another outbuilding, termed somewhat irreverently by Miss Graham "The House of Commons" !—and the "Commons," together with any surplus cockerels that may not be wanted for other purposes, supply all requirements of other people's larders. The amount of accommodation in these outbuildings is very considerable, but it may fairly be said that every inch of it is wanted. What is not required for birds or fattening-coops or the storage of the thousand and one articles of a comprehensive business—the reader will have gathered that practically every branch of utility and fancy poultry-keeping is followed—is taken up by plant for exhibition training or the impedimenta of carpentering. As regards the latter, although the carpenters are not on the farm, the work is done locally, and it is done here; and with a substantial head of stock already in existence—a thousand head or so—which will increase and increasingly call for new houses and coops, and repairs to old ones, it is easy to see that the amount of labour in this department is by no means negligible.

To sum up the establishment, it is, in view of the short time it has been under the present management, and the difficulties attendant on a business with many ramifications, a striking instance of what can be achieved by energy and judicious method. There are dairy cows and horses on the farm as well as poultry ; and though these do not come directly under Miss Graham's management, they have to be considered in arranging for the disposition and treatment of land in the poultry interest. It is intended to promote the colony house system later in the year, and we have little doubt that this will be entirely to the good of a stock that is evidently blest with superabundant vitality. More particularly speaking, Miss Graham is an enthusiast on Rhode Island Reds, and seems to have mastered already the secret of preserving their natural hardiness and their very notable beauty of appearance. The breed is undeniably a fascinating one, the more fascinating, perhaps, because its adherents in this country, though they have latterly increased, are not very frequently met with. We shall watch the breeding experiments at Woolhampton Poultry Farm with more than ordinary interest.



IN THE ORCHARD. [*Copyright.*

THE MARKETS & MARKETING



CONDUCTED BY VERNEY CARTER

Market Reports, Week Ending February 16.

Trade was rather more brisk than during the previous week, and demand for best quality chickens was in advance of supplies. Ducks sold freely, but Turkeys, which were plentiful, only realised from 6d. to 9d. per lb., whilst Cold Stored birds sold from 4d. to 6d. per lb. Cold Stored Ducklings, both Foreign and English, met with fair demand, realising from 3s. to 3s. 9d. each. Foreign Game was plentiful, but of inferior quality, and, therefore, sold for rather low values. English and foreign eggs remained at much the same prices.

Week Ending February 23.

The markets were inclined to be unsettled and values to fluctuate from day to day. Good young chickens were scarce. There was a fair supply of Devonshire, but these were inclined to be on the old side. A few Belgian Poussins were received and realised from 1s. 4d. to 1s. 6d. each; they were not, however, of the best quality, the weather having had an adverse effect upon them. A few Aylesbury Ducklings were received on the Central Markets and sold for 6s. to 6s. 6d. each. Their quality, though good, was not up to the highest standard.

Week Ending March 2.

The Lenten season had a marked effect on demand for better-class poultry. English chickens were scarce, but realised rather lower values than during the previous week. Poussins realised better values, however. Foreign poultry was in fair demand and plentiful supplies were on hand. Foreign eggs were considerably cheaper, especially towards the latter part of the week.

Week Ending March 9.

Trade sluggish owing to Lent. Petits Poussins were more plentiful and met with fair demand, prices varying from 1s. 4d. to 1s. 8d. English poultry sold somewhat slowly, owing to the bulk of it being rather old; young birds were scarce. The better grades of foreign chickens met with fair inquiry. Foreign Game was very quiet. Aylesbury Ducklings, which were very limited in quantity, realised 6s. to 6s. 6d. each. Foreign and English eggs were considerably more plentiful. The values of the former receded considerably.

Week Ending March 16.

There was not much change in the state of the markets to report. Salesmen were complaining of the shortage of English chickens. Poussins met with fair demand at 1s. 4d. to 1s. 8d. English and foreign eggs very plentiful for the time of the year. Guinea-fowls sold fairly freely at from 2s. 9d. to 3s. 3d. each.

THE MIDDLESEX DUCK PLANT, HARROW.

A CONSIDERABLE amount of enterprise has been displayed by the promoter of the above establishment, which has been modelled on lines similar to the farm which exists at Niagara Falls, where, we are informed, they turn out some 200,000 ducklings annually. It is hoped at the Middlesex Farm to produce about 100,000 birds this season. It is principally from this plant that the bulk of the ducklings received on the Central Markets during the early part of March originated. The birds are delivered by their own motor-van, the journey occupying about fifty minutes.

An attempt is to be made to send some of these early birds to the Paris and Berlin markets, where there is a large demand for these delicacies. One of the great difficulties that has to be overcome is the large percentage of mortality which is likely to occur among young birds owing to the inclemency of the weather during January and February. This, and the difficulty of obtaining a supply of fertile eggs, has proved to be one of the great drawbacks to the profitable production of very early ducklings in the past.

[We hope to give a detailed account of the farm in an early issue of the I.P.R.—Editor I.P.R.]

CREDITORS' MEETING.

THE meeting of creditors of T. W. Fowles, poulterer, Smithfield Market and Slater-street, London, which was fixed for March 3 last, at Carey-street, was adjourned to allow debtor to make a statement of his transactions since December 11 last. Mr. Fowles alleges part of his deficiency, amounting to between £500 and £600, is owing to his daughter having been robbed of this sum while taking home the receipts on Christmas Eve.

TABLE OF PRICES REALISED FOR HOME, COLONIAL, AND FOREIGN POULTRY, GAME, AND EGGS FOR THE FOUR WEEKS ENDING MARCH 16, 1910.

ENGLISH POULTRY—LONDON MARKETS.

Description.	1st Week. Each.	2nd Week. Each.	3rd Week. Each.	4th Week. Each.
Surrey Chickens	3/6 to 5/0	3/6 to 5/6	3/6 to 5/6	3/6 to 5/0
Sussex ,,	3/6 ,, 5/0	3/6 ,, 5/6	3/6 ,, 5/0	3/6 ,, 5/0
Yorkshire ,,	2/6 ,, 3/6	3/0 ,, 4/3	3/0 ,, 4/0	3/0 ,, 4/0
Boston ,,	2/3 ,, 3/6	3/0 ,, 4/3	3/0 ,, 4/0	3/0 ,, 4/0
Essex ,,	2/3 ,, 3/6	3/0 ,, 3/6	3/0 ,, 4/0	3/0 ,, 4/0
Capons	— —	— —	— —	— —
Irish Chickens	2/3 ,, 3/3	2/6 ,, 3/6	2/6 ,, 3/6	2/6 ,, 3/6
Live Hens	1/9 ,, 2/3	2/0 ,, 2/6	2/0 ,, 2/6	2/0 ,, 2/9
Aylesbury Ducklings	— —	— —	6/0 ,, 6/6	6/0 ,, 0/6
Ducks	3/0 ,, 4/6	3/6 ,, 4/0	3/6 ,, 4/0	3/0 ,, 4/0
Geese	5/0 ,, 6/6	— —	— —	— —
Guinea Fowls	— —	2/6 ,, 3/0	2/9 ,, 3/3	2/9 ,, 3/3
Poussins	— —	1/4 ,, 1/5	1/6 ,, 1/8	1/4 ,, 1/8

ENGLISH GAME—LONDON MARKETS.

Description.	Each.	Each.	Each.	Each.
Grouse	— —	— —	— —	— —
Partridges	— —	— —	— —	— —
Pheasants	— —	— —	— —	— —
Black Game	— —	— —	— —	— —
Hares	— —	— —	— —	— —
Rabbits, Tame	1/0 to 2/3	1/0 to 2/3	1/6 to 2/6	1/6 to 2/6
,, Wild	0/6 ,, 1/1	0/6 ,, 1/1	0/6 ,, 1/1	— —
Pigeons, Tame	— —	— —	— —	— —
,, Wild	— —	— —	— —	— —
Wild Duck	2/9 ,, 3/3	2/9 ,, 3/3	2/9 ,, 3/3	2/9 ,, 3/6
Woodcock	— —	— —	— —	— —
Snipe	— —	— —	— —	— —
Plover, Golden	0/6 ,, 0/8	— —	— —	— —

ENGLISH EGGS.

Markets.	Per 120.	Per 120.	Per 120.	Per 120.
LONDON	11/0 to 14/2	11/0 to 13/6	10/0 to 11/4	10/0 to 11/0
Provinces.	**Eggs per 1/-**	**Eggs per 1/-**	**Eggs per 1/-**	**Eggs per 1/-**
MANCHESTER	10 to 13	10 to 13	12 to 14	13 to 14
BRISTOL	1/1 ,, 1/2 per doz.	1/0 ,, 1/1 per doz.	0/10 ,, 0/11 per doz.	0/9 ,, 0/10 per doz.

FOREIGN POULTRY—LONDON MARKETS.

Countries of Origin.	Prices Realised during the Month. Chickens. per lb.	Ducks. Each.	Ducklings. Each.	Geese. Per lb.	Turkeys. Per lb.
Russia	0/9 to 0/10	2/6	3/0	—	—
Belgium	—	—	—	—	—
France	—	—	—	—	—
United States of America	0/11 ,, 1/0	—	—	—	—
Austria	—	—	—	—	—
Canada	—	—	—	—	—
Australia	—	—	—	—	—

FOREIGN GAME. LONDON MARKETS.

	Price Each During Month.
Capercailzie	2/6 to 3/6
Black Game	1/6 ,, 1/9
Ptarmigan	0/9 ,, 1/0
Partridges	1/8 ,, 1/9
Pheasants	2/3 ,, 2/6
Bordeaux Pigeons	0/8 ,, 1/3
Hares	2/9 ,, 3/0
Rabbits	0/6 ,, 0/8
Snipe	0/9 ,, 1/3

IMPORTS OF POULTRY AND GAME. MONTH ENDED FEB. 28, 1910.

Countries of Origin.	Declared Values. Game.	Poultry.
Russia	£8,172	£56,783
Austria-Hungary	384	4,711
France	21	5,237
United States of America	—	15,367
Other Countries	5,569	17,548
Totals	£14,146	£99,646

IRISH EGGS.

Description.	1st Week. Per 120.	2nd Week. Per 120.	3rd Week. Per 120.	4th Week. Per 120.
Irish Eggs	10/0 to 10/6	8/10 to 9/0	8/4 to 8/9	8/4 to 8/9

FOREIGN EGGS.

Description.	1st Week. Per 120.	2nd Week. Per 120.	3rd Week. Per 120.	4th Week. Per 120.
French	10/0 to 11/6	10/0 to 11/6	9/6 to 11/0	9/0 to 9/6
Danish	10/0 ,, 10/9	10/0 ,, 11/6	10/0 ,, 11/0	9/0 ,, 9/9
Italian	11/0 ,, 11/6	10/6 ,, 11/0	9/6 ,, 10/6	8/9 ,, 9/6
Austrian	9/0 ,, 10/0	8/9 ,, 9/6	7/9 ,, 8/9	7/9 ,, 8/9
Russian	—	—	—	—
Australian	—	—	—	—
Canadian	—	—	—	—

IMPORTS OF EGGS. MONTH ENDED FEB. 28, 1910.

Countries of Origin.	Quantities in Gt. Hund.	Declared Values.
Russia	579,144	£211,820
Denmark	398,884	213,443
Germany	139,499	57,535
Italy	171,028	91,529
France	82,279	48,120
Canada	—	—
Austria-Hungary	339,398	146,206
Other Countries	514,757	186,848
Totals	2,224,989	£955,501

SOME SPECIALIST CLUB YEAR-BOOKS, 1910.

THE claims of the ever-popular White Wyandotte are persuasively set forth in the year-book of the Specialist Club devoted to that breed. One of the most interesting features of this publication is a symposium of opinions on "Judging White Wyandottes," obtained by Mr. Stephen Hicks, the Club's Hon. Sec. and Treasurer, from such well-known authorities as Messrs. H. Abbot, W. W. Broomhead, W. M. Elkington, Thomas Lambert, and P. Proud. The Club continues to grow, and in spite of a rather large number of defaulters having been struck off the list, the membership now amounts to 187, as against 178 last year. The White Wyandotte lends itself particularly to photographic illustration, and the excellent pictures are an adornment to the book's very readable text.

The photographs are again a feature of the Black Wyandotte Club Year-Book, which also contains a couple of coloured plates. The usual report on Club matters shows a satisfactory financial position, and there has been an increase in membership, though here, once more, the number of defaulters has been strangely large. Mr. C. N. Goode writes a good account of the Club Show at Cambridge last December, and Mr. H. Porritt's presidential address, though brief—and modest—records some useful observations of the breed. Mrs. Bury, the Hon Sec., will send a copy of the book to any applicant on receipt of 3d.

According to the Buff Orpington Club Year-Book, the membership now stands at 223. Thirteen members have resigned, and the Club has lost four others by death, including Major R. Payling, who was the first president of the Club, and whose decease is a matter of general regret. The financial position of the Club continues to be highly satisfactory.

We congratulate the British Rhode Island Red Club on the Year-Book it has produced, and on the auspicious condition of the Club, which only came into being last August. The Year-Book is printed on fine art paper, contains some interesting line illustrations of the breed, and is generally well abreast of the times in its get-up. A brief history of the Rhode Island Red is contributed by the Rev. F. S. Banner, the President; Mr. George Scott, the Hon. Sec., who is mainly responsible for the Year-Book, writes on the prospects of the breed; and there are other interesting articles. The membership at the end of January was 58, and the financial condition of the Club is sound. Mr. Scott will supply a copy of the Year-Book, on receipt of 3d., to anyone interested.

The annual report (1909) of the Buff Plymouth Rock Club states that many new members have joined during the past year, and that the statement of accounts shows a balance of £15 16s. 1d. Mr. W. W. Dobson has retired from the presidency.

The Plymouth Rock Club Year-Book for 1910 contains detailed reports of the last Club Show, and much other information of interest to members. The membership has increased during the past year, and now stands at 120, all of which are "fully paid up"; while the balance-sheet shows a respectable surplus of £27 7s. Dr. Cartwright has retired from the presidency, and his place has been filled by Mr. H. Porritt.

ANSWERS TO CORRESPONDENTS.

The Editor will be glad to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered if possible in the issue following their receipt. The desire is to help those who are in any difficulty regarding the management of their poultry, and accordingly no charge for answering such Queries is made. Unless stated otherwise, Queries are answered by

F. W. PARTON,

Lecturer in Aviculture, The University, Leeds.

The Use of Bran.

I shall be glad to know your ideas about the feeding of bran. Is it of value in a mash for layers, and can it be fed to chickens with any advantage?—A. G. (Whitacre).

In common with other naturally bulky foods of the farm, bran is poor in actual digestible flesh or muscle-forming material, but poultry thrive upon it if the proportion is relative to other balancing ingredients used in soft-food mixtures, and if it is properly prepared, and its use restricted to definite purposes. In the feeding leaflet of the Board of Agriculture, bran is a prominent constituent in nine of the ten suggested rations for laying hens, in the proportion of about one-third to one-fourth of the total weight of each food allowance. It should not be given to quite young birds, but at from three to four months of age well-grown chickens may be allowed a gradually increased quantity to give the requisite bulk to their food; and it is of considerable use in feeding ducks and ducklings—if properly mixed with other foods—these birds requiring bulky rations. The mere damping of bran before feeding is, however, quite inadequate—it must be scalded; otherwise the fibre will tend to set up intestinal irritation, and will, moreover, by producing an unduly rapid evacuation, result in some waste of the partially digested food. Bran, unless properly prepared, results in the loss of a great proportion of the nourishment of the whole ration, causes the birds to be quickly hungry again, and introduces the risk of digestive disorders; but if well scalded—

which makes all the difference in its feeding value—it is a most useful ingredient of mash foods.

Hatching Duck Eggs.

I have had very bad results so far this season with hatching duck eggs artificially. Is it an advantage to damp them during incubation, and if so, how should it be done?—G. G. (Plymouth).

It is not only an advantage, but a necessity, when ducklings are hatched artificially, that plenty of moisture should be given. The best way of supplying the moisture is to sprinkle the eggs daily with warm water; or if the incubator is worked in a room where the atmosphere is very dry, a saucer half full of warm water, in which a sponge is placed, may be kept continually in the egg chamber; this will diffuse the moisture by means of evaporation.

Infertile Eggs.

My duck eggs are very infertile this year. I have fifteen Aylesbury ducks and three drakes, kept in confinement. Do you think there is anything wrong with the drakes, or have I too many females in the pen?—M. B. (Oxford).

Undoubtedly the reason for the infertility of your eggs is that you have too many ducks with the drakes. To remedy this, the number of drakes should be doubled—namely, six with your fifteen Aylesbury ducks. As a rule three ducks may be allowed with one drake, but during very severe weather, such as we have had this year, better results are obtained by having two drakes mated with five ducks.

Cross for Spring Ducklings.

Is a cross between Pekin and Aylesbury a suitable one for raising spring ducklings? I propose to buy week-old ducklings this spring and mate up my own pens in the autumn.—J. P. (Morpeth).

This is an excellent cross for securing spring ducklings, as the young ones grow very rapidly. The best results are had by using the Pekin drake with Aylesbury ducks.

Silver Grey Dorkings.

I find Silver Grey Dorkings rather delicate and difficult to rear in this part of the country. My object is the production of table chickens, and I should like to be advised as to the best male to use for crossing with a view to imparting vigour to the progeny.—J. M. H. (Kilmarnock).

You do not state the nature of your soil; but it is found that Silver Grey Dorkings are quite unsuitable for any conditions other than a light gravel soil, and a sheltered position. As you find your Dorkings delicate and difficult to rear, you could doubtless strengthen their progeny, and yet fully maintain the excellent table properties, by crossing with an Indian Game male bird. If, however, your soil is not of a nature to encourage rapid growth, even this introduction will not entirely overcome their delicacy.

Ground Bones.

I have a machine for grinding bones and use the meal thus obtained, mixed with sharps, for the morning hot meal. The bones often get rather damp and mouldy before being ground, as I cannot do them directly they come from the kitchen, and I wondered if it was harmful to the poultry. They seem quite healthy except that they are rather inactive. I lost two during the very cold weather out of fifty-six, and as this is an exposed place I put it down to cold.—C. M. A. (Ilkley).

The ground bones should be perfectly fresh; if mouldy, they will not serve the purpose for which they were intended. It is inadvisable to feed bones to your fowls in this condition. At the same time, as you say your fowls seem quite healthy, and that you have only lost two out of fifty-six, the bones are evidently not very harmful.

Duckling Production.

Can you give me any reliable information about the methods adopted on the new duck farm near Harrow, about which I have seen some mention in the daily papers?—H. B. L. (Maidstone Barracks).

A representative of the ILLUSTRATED POULTRY RECORD has already visited Stanmore, where this plant is situated, and a detailed and illustrated account of the establishment will probably be published in the next issue. The enterprise is a most interesting and ambitious one, and some description of the operations will doubtless be of general interest, but would occupy too much space in this section.

Short Replies.

A. C. G. (Aberdeen): 3s. 6d. per dozen.

B. S. (Hadleigh): Faverolles—Buff Orpington.

P. L. (Worthing): We do not know the answer.

C. W. (Enfield): American price equal to 4s. 2d.

A. McG. (Forres): You can buy a good one for 2s. 6d.

L. O. M. (Oundle): No; you will be too late for this year.

M. B. (Gateshead): Write to the secretary of the club you mention.

J. C. (Hastings): Vancouver Island is, as you suggest, most suitable.

TRADE NOTICES.

"East of England" Poultry-Yards.

Messrs. Abbot Bros., the well-known breeders and exhibitors, of Thuxton, Norfolk, issue one of the handsomest catalogues of the season. The yards at Thuxton have already been described in the ILLUSTRATED POULTRY RECORD, and the character of the business, embracing as it does many other kinds of live stock besides poultry, is sufficiently well-known. This catalogue is interesting and instructive. Besides giving full particulars of the stock, it embodies "Hints to Intending Poultry-Keepers," advice on turkey rearing and fattening, and other informative matter which, proceeding from such an authority as Mr. Harry Abbot, is of the highest practical value. The series of half-tone illustrations could hardly be bettered. They picture the farm and the most noticeable stock with the utmost fidelity. Readers of this journal can obtain a copy of this catalogue gratis, on application to Messrs. Abbot Bros. at the above address.

A. Thorpe and Sons, Rye, Sussex.

Mr. Thorpe informs us that his firm supplied all the foods used at the U.P.C. Southern Laying Competition.